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The Economic value of Fasileades World Heritage Royal Enclosure: A Travel Cost Approach

Thesis submitted to Gondar University in partial fulfillment of the requirement for the degree of masters of Science in economics

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CERTEFICATION

As thesis advisor, I certify that I have read and evaluated this research work contribution in detail under my guidance, by Seyidie Shemsu entitled **"The Economic Value of Fasileades World Heritage Royal Enclosure: A Travel Cost Approach"**. I recommended it to be submitted as fulfilling the thesis requirement for the degree of Master of Science in Natural resource and Environmental economics.

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As member of board of Examiners of MSc. thesis open defense examination, we certify that we have read and evaluated the thesis prepared by Seyidie Shemsu and examined the candidate. We recommended that it be accepted as fulfilling the thesis requirement for the degree of Masters of Science (MSc.) in Natural resource and Environmental economics.

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ACRONYMS

ACG	Allen Consulting Group
CHS	Cultural heritage site
CS	Consumer surplus
ETB	Ethiopian birr
FWHRE	Fasileades world heritage royal enclosure
ITCM	Individual travel cost model
OLS-	Ordinary least square
OPS	Opportunity cost of time
SNH	Scottish natural heritage
TCM	Travel cost model
TEV	Total economic value
TNB	Truncated negative binomial
TPM	Truncated Poisson Model
UNESCO	United Nations Educational, Scientific and cultural organization.
WHS	World heritage site
WTP	Willingness to pay
ZTCM	Zonal travel cost model

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ABSTRACT

The measurement of economic values provided by historic/cultural heritage has increasingly been recognized as a fundamental part of cultural heritage policy, and it is increasingly being considered in the policies of social and economic development. Valuation of cultural or historic heritage sites shares many characteristics with the problems encountered in valuing the environment. Its value cannot be easily identified as many of the places may not enter markets, or do so indirectly and imperfectly, and many benefits are wholly intangible.

This paper focused on an empirical application of the travel cost method, to estimate the economic value (use value) of Fasileades World Heritage Royal Enclosure which constitutes an important historic heritage item of Ethiopia, classified by UNESCO in 1997, as a world heritage site.

The result of the study indicates the truncated Poisson model as the appropriate model for the regression analysis than the negative binomial regression model in view of the fact that over dispersion problem was not found on the data. Seven out of ten variables (total travel cost, income, educational level, family size, age, group status and years of acquaintance) were significant on both models. Marital status, gender and cost of visiting the best alternative site become insignificant variables on determining visitor's number of visit to the Fasileades Royal Enclosure site.

The domestic aggregate benefit of the site (use value of the study site) was estimated to be Birr 50,218,102.6 per annum, implying that the site authorities collected only 9.4% of this sum. In addition, the individual average per visit consumer surplus and aggregate consumer surplus was estimated to be birr 404.85 and birr 38,119,056.6 respectively. This indicates that the economic benefit of the site is much larger than what is currently collected by the authorities and thus the site authority can change the current prices of visiting the site. Moreover, alleviating problems that reduce the quality of the site service is very important to attract more visits.

CHAPTER ONE

INTRODUCTION

1.1. General background

Historic and Natural heritage is among the priceless and irreplaceable assets, not only of each nation, but of humanity as a whole, (UNESCO, 2005). The World Heritage Convention declared by (UNESCO, 1972) embodied this principle, and has established the world heritage Sites (WHS), which comprise features of outstanding universal value by understanding the benefit of conserving WHS for sustainable development. (SNH, 2007)

As confirmed by multiple studies such as, Robinson et al, 2007 and Cornelia and Mikhail, 2003, heritage, if properly managed, can be instrumental in enhancing social inclusion, developing intercultural dialogue, shaping identity of a territory, improving quality of the environment, providing social cohesion and on the economic side; stimulating tourism development, creating jobs and enhancing investment climate that generate an overall alteration for the local people and the nations. The heritage sector is considered a part of creative industries which provides jobs and generates growth as a sector of activity on its own. And, it has spill-over social and economic effect in other fields, such as agriculture, regional development, environment, science and education, tourism, technology, innovation, social cohesion. Economists and other scholars stressed the role of cultural heritage as a 'differentiator', which can attract investment for job creation and foreign exchange, as well as talent. This also raises issues regarding the distribution of capital gains between the local community and outside investors that allow unemployed and underemployed individuals especially for developing countries to get jobs. (Cornolia & Michael, 2013)

Heritage is an important lever for economic development (Greffe, 1993). In the developed countries, the heritage industry is considered as one of the main instruments to create the opportunity for new jobs. For example, Cultural heritage sector provide 2.8% of employment in Western Australia. In the United States of America the not-for-profit cultural heritage sector represents nearly 1% of the total workforce, and in the United Kingdom cultural sector employs 1.3 million people (Kaspars, 2008) In addition, the historic heritage is a source of new references for economic innovations, and a way of positively enforcing the identity of the local authorities.

The World Bank and UN agencies have included in their agendas the idea of heritages and cultural heritage sites in particular as a focus for local, national and global socio-economic development (Elene, 2010)

Cultural heritage is the sector that the tourism industry uses to the greatest extent as a means for its significant economic contribution. For instance, Ethiopia hosts increasingly large amounts of foreign tourists; 560 000 and 629050 tourists came to Ethiopia in 2011 and 20013 respectively. And 663,767,875 birr was earned in 2013 with a plan of earning three billion USD from one million tourists by the end of 2015. The main reason for increasing number of tourists and its significant economic contribution is her richness in cultural and historic heritage (Ethiopian herald, 2014, Elene, 2010).

Heritage tourism has also significant impact on local communities' economy. If it is done right, the biggest beneficiaries are not the visitors but the local residents who experience a renewed appreciation for and pride in their local city and its history. The influence of well-planned and well-managed local tourism programs improving the local economy and enhancing the quality of life for local residence. (EUROMED, 2006) The benefits may include the potential for profitable domestic industries - hotels, restaurants, transport systems, handicrafts and guide services. In addition, there is a not quantified gain of tourist expenditure due to their abandoned formally registration in macro-economic scales. Through this, money earned through informal employment such as street vendors, informal guides, rickshaw drivers, etc. that is returned to the local economy, and has a great multiplier effect as it is spent over and over again. The World Travel and Tourism Council (WTTC) estimate that the indirect contribution of tourism equals 100% of that of direct tourism expenditures (IBID)

Cultural or historic heritage has also a great value for other industries. It plays an economic role in cultural and creative industries, and regional development. The businesses exploit cultural heritage in marketing, promotion and reception activities. It serves as an arena for a diversity of events and spectacle. It serves as a venue and value added to restaurants and other meeting places, shops and commercial space or locations for conferences and seminars. Cultural heritage facilitates outlet and incitement for local products and production; books, maps, multimedia, design and posters exploit and revive cultural heritage. Branding of products, of regions and localities are often based on cultural heritage. Cultural landscapes, townscapes, some heritage sites and buildings are used for the film and television industry, and also as input or a backdrop for computer games (Nypan, 2003)

In addition to the above macroeconomic role (benefits to the society as a whole), cultural heritage has also microeconomic benefit. The historic or cultural heritage is considered as an instrument for satisfying the demand for leisure activities. The benefits accrues to individuals as a user (visitors) of cultural heritage sites (including recreational, aesthetic, educational value, spiritual, symbolic, authenticity value) which are the target of this research work and non use value such as existence value, option value, bequest value are the other sides of heritage benefits (Kaspars, 2006).

Understanding the multi types of micro and macroeconomic role of heritage sites, efforts to value the effects of economic activities lie at the heart of planning for sustainable development. In the past some environmental goods and services have been assigned zero or low values. This was due to the difficulties involved in assigning economic values to such commodities or to the attitude that they are 'free goods'. It is important to integrate environmental values into economic decision making processes because failure to do so can have adverse implications not only for current generations but also for future generations (Girima, 2006, Tatiana, 2010)

The assessment of economic values provided by cultural and historic built heritage has increasingly been recognised as a fundamental part of cultural heritage policy (Mazzanti, 2003) Valuation of cultural and historic heritage sites shares many characteristics with the problems encountered in valuing the environment. Its value cannot be easily identified as many of the places may not enter markets, or do so indirectly and imperfectly. And many benefits are wholly intangible. Moreover, the nature of the benefits provided by historic heritage is conceptually very similar to those provided by, for example, national parks. (Torre and Mason 2002)

Most of the cultural heritages goods possess not only private, but also public good characteristics. They are rarely traded in markets and, therefore, do not have an observable price. For example, it is difficult or impossible to charge people for viewing and enjoying a building of cultural significance or architectural monument and, tourist viewing and enjoying the building of cultural significance or architectural monument at the centre of the city does not stop other tourists from viewing and enjoying it. This leads to a situation where markets cannot provide such goods sufficiently.

The public good characteristics and intangibility nature of cultural or historic build heritage not only direct to the need of applying appropriate non market valuation techniques, it also makes its valuation complicated (Kaspars, 2006 and ACG, 2005)

There are a number of powerful arguments for using economic valuation to cultural and historic heritage sector. It is important to inform macro and micro decisions in the cultural and historic heritage sector if it is needed to enjoy the benefits of heritage sites in sustainable manner. For example, cultural heritage institutions (publicly and/or privately managed) are increasingly being required to justify their expenditure decisions or requests for funding in terms of generated 'user benefits'. Furthermore, in a world where potential visitors are income constrained and getting more sophisticated, cultural destinations have to renew themselves to compete and survive. Therefore, a consumer-oriented approach has increasingly needed to be taken to cultural heritage management and conservation, leading to on-going market research studies to understand demand, strong marketing to generate awareness and attract new visitors and a focus on encouraging repeat and new visits, both essential sources for long-term survival. For these reasons, demand-led approaches, such as economic valuation techniques, may possibly form a part of the new lexicon of the cultural heritage industry and a useful component of the historic heritage analyst tool kit. (Kaspars, 2006, Mazzanti, 2003)

Ethiopia in contrast to its rich cultural and natural resource is among the least developed countries in the world. Extreme poverty is the major challenge of the people of the country (MDG, 2013). It is at one stop tourist destination country. It has abundant natural and cultural heritages, and in natural heritage she is global ranked at 37^{th} and in terms of cultural heritage she is globally ranked at 38^{th}. It has untapped nature based tourism potential (eco tourism potential); 20 national parks, 4 wild life sanctuaries, 18 controlled hunting areas, and 9 world heritage sites (Sisay, 2013).

According to the Ministry of Culture and Tourism more than $633.7million was obtained in 2012 from over 629,000 visitors to Ethiopia (Ethiopian News, 2013). However, given this immense tourism potential, its performance in the sector is one of the lowest in the world (Yabibal, 2010) Therefore, given the potential contribution of the tourism industry in the poverty reduction process, conserving and managing, as well as valuing or measuring our natural and cultural heritage through appropriate environmental valuation method is very important.

In the environmental economics literature we have different valuation methods of environmental benefits. These valuation methods are usually divided into two: Direct methods and indirect methods (Perman et al, 2003 and Ahimed, 2004). Direct methods seek to infer individuals' preferences for environmental service directly by asking them to state their preferences for the environment. Indirect methods seek to recover estimates of individuals' willingness to pay (WTP) for environmental quality by observing their behaviour in related markets. The main potential

methods for valuing the benefit from cultural heritage site like building, monuments, old castles and other cultural resources are the revealed preference methods: - hedonic property valuation and travel cost method (Akhmad & Krisnandhi, 2010; Ana, 2004; Olga 2013). In this paper, it is opted for the application of travel cost method, recently used in the valuation of cultural heritage sites. This method seeks to place a value on heritage sites by using consumption behaviour in related markets. In other words, use value for the site is obtained by considering how much people are prepared to spend to reach & enjoy the site. The application of TCM to value tourist's destination sites such as cultural and historic heritage is becoming routine in the valuation literature (Haab & Maconnell, 2002; Smith & Daniel J, 2004; Chen, 2012; Navrud and Ready, 2002).

1.2. Statement of the problem

Ethiopia is an ancient country with a remarkably rich cultural diversity. It has wealth of cultural and natural resources, including archaeological sites, ancient churches and monasteries, medieval castles, historic towns and traditional festivals. The diversity includes tangible and intangible heritage with different cultural expressions, languages, and old know how in handicraft production. Heritage and culture are the primary motivators that motivate and mostly inspire overseas visitors as their reason to visit Ethiopia (Elene, 2010 and World Bank, 2006)

The country's cultural industry is one of the oldest in the world and is exceptionally diverse. Moreover, nine of Ethiopia's cultural and natural heritage sites are listed on UNESCO'S World heritage Site attesting to the outstanding universal value of Ethiopia's heritage. The rich cultural landscape is further enhanced by the representation of numerous religions including Christianity, Islam, Judaism, and other domestically religions. The peaceful co-existence of these religious communities for centuries is a testament to Ethiopia's social cohesion. Moreover, Ethiopia is a land endowed with immense biodiversity. (MDG, 2013)

Parts of Ethiopian heritage and cultural sites are found in Gondar. The old imperial capital of Ethiopia, Gondar, charms its visitors with its many historical buildings and ruins as well as a great number of churches. Also called the "Camelot of Africa", the city is popular as a tourism attraction most of which are situated in the heart of the city, in the Royal Enclosure. This area contains five castles, three churches as well as several other sights that make it a must to see for all history enthusiasts. There are also numerous other historic and archaeological sites situated close to Gondar. (Fannos Ethiopia, 2014)

Especially the city is famous for its palaces and castles, most of which were constructed in the 17th century. The city's main imperial precinct, known as the Royal Enclosure (for easy identification in this paper we call it as Fasileades royal enclosure , covers an area of 7.7 hectares and contains six castles including the Castle of Fasileades, where some are decorated with ivory, gold and precious stones, some are raised walkways and connecting tunnels surrounded by high stone walls. The upper storey offers panoramic views and Lake Tana is visible on a clear day. This sites are one of the most outstanding and highly interesting tourism areas and is a paramount specimen of world's site used as ecotourism site which can enhance not only the local community but also national economy. For instance, beginning from 2010, with in the consecutive four years 563659 number

of tourists had visit Fasileades world heritage royal enclosure, and it had generate 249,871,910 birr from this tourists. (Culture and tourism office, 2014)

Fasileades world heritage royal enclosure has been declared, as one of the first sites all over the world, a World Heritage Site by the UNESCO World Heritage Committee in 1978.

Among the various uses of free and leisure time, cultural and historic heritage tourism has taken on great importance, having passed from being an activity of the elite minority to something, which has become frequent and commonplace. In addition to raising an individual's level of education and forming part of his recreational activity, cultural tourism is a source of wealth and job creation. The profitability of this type of tourism does not depend much on the admittance fee charged to gain access to cultural heritage sites which in many cases is zero or near to zero, but rather on the commercialization of products related to the visit, and on the economic benefits to the area in which the site is located. Rapid growth in population, mobility, urbanization, greater cultural awareness, the rise in economic levels, and the improvement in transportation and communication have all favoured an increase in the consumption of cultural and recreational heritage goods. (Ana et al 2003, Sitotaw 2003, Kris 1999, and Cegielski, 2000)

Managing environment resources is one of the most important inputs for sustainable economic development. In statistics it is said that "you cannot manage what you cannot count" (Adem, 2011). This can be rephrased for cultural and natural heritages by saying you cannot manage these resources unless you value them**.** Managing heritage tourism sites implies finding optimal ways to combine the conservation instance with the need for site improvement to maintain & acquire its all economic opportunities. Mourato and Mazzanti (2002) stressed that economic valuation is an important and a power full tool, since "ignoring economic preference can lead to under valuing and under pricing of cultural assets''. This, in turn, can cause reduction of the amount of financial resource available to cultural heritage proportionate to other public priorities.

Unlike other private marketable goods, values of most heritage sites cannot easily be determined through the interaction of supply and demand. Thus, there is a need to have some ways to put an economic estimate to this sites whose values are not easily determined in conventional market situations.

Theoretically it is explained that putting an accurate and acceptable monetary value on heritage sites like cultural& historic heritage sites (old castles and palaces, royal buildings, monuments and so on)

would be very valuable in resource management in different ways. First, it would provide a means for comparing the importance of visiting the site with that of other uses of the same resources. Secondly, the value of the benefit provided by a proposed site would provide one measure of the desirability of making the necessary investment in the project. Thirdly, the value of the site would provide a ceiling to any fees that might be charged for its use. (Eleonora et al, 2003 Kaspars, 2006 and Sitotaw, 2003)

Therefore, we need to impute values that reflect the true benefits of cultural/ historic heritage sites using some techniques of valuation. If the economic costs and benefits of the sites are not estimated using accepted environmental valuation techniques, conservation benefits could not be nearly approximated. Thus, one may be forced to use the area for other development activities due to underestimation of the conservation benefits of the site and overestimation of the benefits of other development activities. As a result, irreversible damage may occur. In addition, undertaking an appropriate demand side valuation technique could help for expanding the potential benefit of heritage sites based on looking the preference of the consumers (ibid)

Fasileades World Heritage Royal Enclosure site like many other cultural and historic heritage sites, have so many use and non-use values such as educational, historic, aesthetic, social, political, recreational value, cultural value. The Palace has been restored partially by UNESCO in cooperation with some European countries, since becoming a registered UNESCO World Heritage site. However, the site still lacks a scientific estimate of its economic benefits. Apart from what can be inferred from data on visitors and from maintenance and restoration expenditures, little is known about the actual magnitude of the economic value of the site. Although, this site is the most outstanding cultural heritage assets of Ethiopia with multi directional value, it is faced with less organized(less scientific) management and conservation strategy (UNESCO courier, 2009 and Elene, 2010). One of the main reasons for this problem is the absence of efforts made on the application of demand lead conservation and management approaches such as, demand based value analysis techniques (economic valuation). The application of demand side approaches such as economic valuation techniques will help to assess the preference and behaviour of the site users, and help to estimate the economic benefit of the site service. If the site authorities are not aware of the approximate economic value of the site, they are not able to generate the potential revenue vis-à-vis the environmental benefit of the site. Accordingly, they cannot properly and efficiently manage the site and can create conservation and sustainability problem. Hence, there is a need to estimate the value of Fasileades World Heritage Royal Enclosure Site which could help the

concerned authorities not only to be aware of the true economic value of the site but also how much revenue they can extract out of the benefit of consumers (visitors) to improve the qualities of the site, expand the varieties of its potential services and consequently, generate more economic benefits. Therefore, different research works must be conducted needed solve such less attempts on the economic valuation of the heritage sites.

Thus, in this regard, this study was conducted more importantly to estimate the demand function and measure economic value of Fasileades Royal Enclosure Site from visitor's perspective. In addition, the study tries to assess visitor's attitude and satisfaction of their experience on the royal enclosure.

1.3. Objectives of the study

The general objective of this study is to estimate economic value of Fasileades World Heritage Royal Enclosure using A Travel cost method.

1.3.1. Specific objectives

Estimating the demand function and approximate annual use value of the Fasileades World Heritage Royal Enclosure Site

Assessing the socio-economic and demographic characteristics that significantly influence the demand to visit the Fasileades World Heritage Royal Enclosure Site

Assessing visitor's opinions on the standard of the Fasileades World Heritage Royal Enclosure Site

1.3.2. Key research questions

i. As it is explained in many literatures, measuring the value of conserving cultural heritage sites like historic building and monument is the vital input for the establishment of an accurate management decision and conservation scheme (Anna, 006) Hence, here is the main research questions of this paper:

What is the Economic value of having conserved cultural/historic heritage royal building? This can be seen with the application of economic valuation for the Fasileades World Heritage Royal Enclosure. Additionally, this study tries to assess what socio- economic and

demographic characteristics of visitor's significantly influence their demand for visiting Fasileades World Heritage Royal Enclosure

ii. Successful management of a tourism destination is enhanced by the knowledge of the reactions, both positive and negative, of the visitors to the site. Therefore, the other point of interest is assessing visitor's feeling and their opinion on the site:

What level of satisfaction visitors enjoy from Fasileades World Heritage Royal Enclosure, and if any, what is the source of their disappointment on their visit experience to the site?

How important is visiting cultural/historic heritage sites like Fasileades World Heritage Royal Enclosure? In addition, the study asses the reasons (the purpose) for visitors' to visit historic heritage sites like Fasileades World heritage royal enclosure?

1.4. Significance of the study

An application of demand lead approach on heritage sites such as, economic valuation techniques will help to make an accurate expenditure and investment decision on the cultural heritage site based on its user's reactions, behaviour, and benefits. Beyond that, estimating the economic value of heritage sites will enable to take useful decision in the allocation scarce resource and to choose the site project that is more profitable. The generated 'user value' of the site will provides a guideline for the possible introduction of entrance fees, and provide quantitative results in a way that may be a benchmark for the concerned body to look for better planning and conservation strategy. In addition, the estimated value may also help promoting to sustain other possible tourist destination heritage areas, which may have not been protected yet.

This research work will also contribute very importantly to the existing limited literature in the area of historic heritage economics. Moreover, the result may be used as an input for further more comprehensive and rigorous policy oriented research work in the cultural/historic heritage sector in general, and for the Fasileades world heritage royal enclosure in particular.

1.5. Limitation of the study

This research work is certainly subjected to time and financial constraints. Therefore, the study is restricted to the application of only travel cost method to value the economic benefit of world heritage site in the case of Fasileades World Heritage Royal Enclosure. In addition, the researcher is constrained to consider only domestic resident who visited Fasileades World Heritage Royal Enclosure.

The other main limitation of this study is lack of previous empirical research on measuring the benefit of our cultural/historic heritage sites that have negative significant effect on the performance of this research work.

The survey data was collected from on site survey or only from domestic individuals who are at the site during the survey period and only use value of the site from visitor point of view was estimated.

1.6. Organization of the paper

The remainder of the thesis proceeds as follows. Chapter two presents theoretical background of environmental value and, literatures on various methods of valuation techniques for heritage sites followed by a review of empirical studies. The theoretical and methodological framework of travel cost method was described in detail in chapter three. In chapter four samples descriptive are provided, visitor's opinions are discussed and the results of travel cost are presented and analyzed. Finally, in chapter five, the main findings of the study were summarized and, policy recommendations were drawn.

CHAPTER TWO

LITRATURE REREVIEW

Under this section both theoretical and empirical literatures is reviewed and presented with a particular emphasis on the tourism value of cultural or historic heritage site (old palaces & castles ,museums, ruin, monuments and other cultural institution) with its local, national and global economic significance . Classification of value of environmental resource particularly for cultural heritages, methods of valuation in the case of historic or cultural tourists' destination sites, travel cost method and its methodological frame work is presented under the theoretical literature review. Empirical research on the application of travel cost method to measure the economic value of heritage sites particularly for historic or cultural heritages is also included in this section.

2.1. Heritage and World Heritage Sites

Heritage is our legacy from the past, what we live with today, and what we pass on to future generations. They are our irreplaceable sources of life and inspiration. They are also our touchstone, our points of reference, our identity (UNESCO, 2005). Heritage is what we inherit and what we retain of this inheritance. They can include sites, areas and cultural landscapes as well as buildings and works (singly or grouped), ruins and movable objects and may include components, contents, spaces and views. (Torre and Mason, 2002) According to The United Nations Educational, Scientific and Cultural Organization (UNESCO), there are three types of heritages, namely cultural heritage, natural heritage and intangible heritage,

a) Cultural heritage: it is a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time. (Cornelia & Michael 2013) More precisely, cultural resource can be assigned in to the following categories: tangible movable resource, tangible immovable resource and intangible resource. Tangible resources are physical artefacts that are considered necessary to be preserved for the benefit of future generation. Furthermore, monuments, historic places and building can be defined as tangible immovable resource whereas objects in museums belongs to tangible movable resource (UNESCO, 2013) In comparison, intangible cultural resource embraces non physic heritages like spiritual values,

moral, language, oral literature, arts, music, handicrafts, traditional games, lifestyles and habits of different societies and so on(Olga, 2013)

b. Natural heritage: it consist natural features consisting of physical and biological formations or groups of such formations, geological and physiographical formations and precisely delineated areas which continue the habitat of threatened species of animals and plants, and lastly natural sites or precisely delineated natural areas with a value from the point of view of science, conservation or natural beauty.
c. Intangible heritage consisting practices, representations, expressions, knowledge, skills as well as the instruments, objects, artefact and cultural spaces associated there with that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.

Taking in to account the multi dimensional benefit of heritage sites, creating an international movement for protecting heritage was emerged after World War I. The idea of world heritage sites had started after the Convention concerning the Protection of World Cultural and Natural Heritage adopt by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in November 1972. The impetus for developing this convention came from the United Nations Conference on the Human Environment held in Stockholm in 1972. The preamble to this convention points out that "parts of the cultural and natural heritage are of outstanding interest (universal value) and therefore, need to be preserved as part of the world heritage of mankind as a whole". (UNESCO, 2002) It provides for international cooperation in protecting unique sites or buildings. Each site on the list is under strict legal protection by its national government. Properties are only accepted for listing as World Heritage properties if they have "values that are outstanding and universal". The criteria for selection are that a property should satisfy one or more of the following requirements:

1. Should contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

2. contain "outstanding examples representing major stages of the earth's history; including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features";

3. possess "outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial fresh water, coastal and marine ecosystems and communities of plants and animals"; or

4. have “the most important and significant natural habitats for on-site conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation” (Clem, 2010)

As of September 2012, 190 state parties have ratified the world heritage convention with 981 properties of World Heritage listing. Most of these, 759 sites were listed for cultural reasons. Only 193 and 29 had been listed solely as natural and mixed heritage sites respectively.

2.2. World Heritage Sites in Ethiopia

Ethiopia is a party to the World Heritage Convention. Most of its listed properties have been listed for cultural reasons. From the total of nine world heritage sites of Ethiopia, eight of them are registered for cultural and mixed (both cultural and natural) heritage sites. It is only the Simien National Park that is registered solely for natural reasons (UNESCO, 2013)

Table 2.1.World Heritage sites in Ethiopia

Site name	Entered
Simien National Park	1978
Rock-hewn Churches, Lalibela	1978
Fasil Ghebbi, Gondar Region	1979
Lower Valley of the Oromo	1980
Aksum	1980
Tiya	1980
Lower Valley of the Awash	1980
Harar Jugol	2006
Konso Cultural Landscaper	2011

Source: - Fannos Ethiopia, 2014

In addition, Bale Mountains National Park, Dirre Sheik Hussein Religious(Cultural and Historical Site), Gedeo Mixed Cultural and Natural Landscape, Holqa Sof Omar(Natural and Cultural Heritage, Sof Omar: Caves of Mystery), Melka Kunture and Bachilt Archaeological Site are taken as a tentative lists of Ethiopia in the world heritage sites

2.3. Economic significance of Cultural Heritage Sites

Many authors agree that cultural heritage should be promoted as a vehicle for social and economic regeneration if we are to progress towards sustainable development (Tatiana, 2010). For a long time, economic knowledge has neglected the concept of heritage and its economic consequences. Moreover, economists have always quoted the cultural activities as a prototype of the non-economic commodity; in its traditional approach, it was non-reproducible and non-substitutable asset. The owners of the heritage resources, public or private, benefit from some rents paid by the visitors but this income appears as the consequence of a monopoly power and not as the counterpart of a productive service: a rent seeking economy which is not organised to create new services and new productive income. However, this approach had changed. Heritage can be considered as a stock of assets which may generate new types of services for the residents of its local territory as for people from outside. If the owners are able to identify these services and to implement them, we enter in the space of reproducible resources, added values and new employment. Heritage is no more a non reproducible asset but a basis of reproducible services. Heritage economy is no more a rent economy but a productive economy. (Nypan, 2003; Peter and Colin, 2001)

In general, the economic benefits of historic heritage sites can be stated as to the following framework

Figure 2.1.Total benefit framework for cultural heritage sites

Generalized framework of the total benefits derived from historic places		
Categories		
Personal	Commercial	Social
Benefits accruing to stakeholders (users and non-users)	Benefits derived from the net redistribution of commercial activity from one area to another	Unallocatable benefits to either individuals and/or businesses yet indivisible and tending to be societal in scope
Benefit components		
Use Values: - Direct use - Indirect use Non-Use Values: - Option value - Existence value - Bequest value	Impacts associated with attributable spending by stakeholders and by historic place(s) owners/managers on operations, management and development from sources outside the area of assessment.	Cultural benefits Educational benefits Identity - national, local, personal Financial transfers (contributions) from outside area of assessment Financial transfers (contributions) Health effects - mental, physical, spiritual International agreements and conventions Community cohesion and 'quality of life' Environmental benefits Others

Source: - The Outspan group, 2005

The framework recognizes the financial, use and non-use benefits that individuals enjoy from built heritage; selected economic impacts that reflect commercial gains; and the broader benefits to society which are more difficult to quantify. The personal category identifies all benefits accruing to stakeholders, whether they are direct users, indirect users or non-users of the built heritage being

assessed. This category includes benefits received by those who actually visited or used the heritage site (direct users), those who have enjoyed the asset through some indirect means (e.g. photographs, movies, books, etc.), and those who have a knowledge of and/or interest in the built heritage but have not used it in any way (non-users). Non-use values also include the benefits received by persons who may not know about the specific asset, area or theme but receive benefits from the knowledge that these types of heritage resources exist as a matter of public policy and/or private interest. Certain expenditures (e.g. entry fees) and consumer surplus values are the main sources of value in this category.

The commercial category of benefits exists when valuing the benefits of built heritage from the perspective of a defined area (e.g. local community or province). These are the benefits to business within the defined area. The economic impacts of spending within the area from sources outside the area (by users/visitors and/or by historic place owners/managers) produced as a result of the built heritage can be considered a net commercial benefit for that community or area. It represents income and employment that would not otherwise have existed without the spending of agencies and people from outside the defined area.

The 'societal' category is the most comprehensive, and yet the most nebulous. Societal (or public) benefits are all those benefits which accrue to society as a whole (over and above those to stakeholders and businesses). While there is inevitably some overlap with the personal category of benefits, these benefits to society go beyond the personal: the country, region, or area. These benefits range from the practical, such as enhanced cultural awareness and identity, to more subjective benefits such as increases in quality of life and population health.

In the tourism industry, cultural, historic and natural heritage tourism is increasingly recognised as world's leading category of international trade; increasingly offering a range of cultural heritage products, from visiting monuments to discovering unique ways of life as supply for increasing cultural and heritage tourism demand. UNESCO defines cultural tourism as "to create a discerning type of tourism that takes account of other people's cultures" (UNESCO, 2005). Culture is a set of distinctive spiritual, material, intellectual and emotional features of society or a social group. It encompasses, in addition to art and literature; lifestyles, ways of living together, values systems, traditions and beliefs (UNESCO, 2001). The World has some 6000 communities and as many distinct languages. The National Trust's definition of cultural heritage tourism is "travelling to experience the places and activities that authentically represent the stories and people of the past

and present. It includes historic and cultural." (Cultural Heritage Tourism, 2005) In 1985, World Tourism Organization (WTO) provided two definitions of cultural tourism. The narrower definition includes: "movements of persons for essentially cultural motivations such as study tours, performing arts and cultural tours, travel to festivals and other cultural events, visits to sites and monuments, travel to study nature, folklore or art, and pilgrimages. The wider definition includes: all movements of persons, because they satisfy the human need for diversity, tending to raise the cultural level of the individual and giving rise to new knowledge, experience and encounters. (Ebru et al, 2008)

The macro economic impact or the commercial impact of cultural and heritage tourism can be divided into three types: balance of payment effects, income effects and the employment effects. One of the strongest arguments for promoting international tourism as a development strategy to stimulate economic growth is its capacity to earn much needed foreign exchange and thus help balance of payments. The income and the employment effects are often measured in terms of their multiplier values. Economic multipliers result from the process by which tourist spending stimulates further spending and increased economic activity. There are three categories of multiplier effects: direct, indirect and induced effects. The direct effects are economic impacts directly related to tourism for instance incomes arising to the tourist suppliers like the hotels, airlines and the travel agents. This will be spent as wages, rent, interest and payments to the suppliers of goods and services to the tourism establishments. This will then generate the indirect effects. The induced effects, on the other hand, arise from the re-spending of wages earned in businesses that benefit from direct or indirect effects. The direct, indirect and induced effects are used to calculate economic multipliers, which can then be used to estimate the impacts of heritage tourism. (World Bank, 2006)

2.4. The need for environmental valuation

The main motivation for environmental valuation is to include environmental impacts into cost-benefit analysis. Cost–benefit analysis involves making a value judgement i.e. in assessing the relative worthiness of environmental effect, it is necessary to declare that a given state of nature is either ‘better’ or ‘worse’ than another (Ahmed, 2004). To make such decision the benefit and the cost of environmental service must be valued. Specifically valuation has the following benefits; first, environmental resources often have the characteristics of public goods and externalities are common; market prices cannot be relied on. Secondly, the need to obtain values of environmental resources to identify or at least approximate a socially optimal decision (optimal tax rate, project

appraisal). Finally, the need to demonstrate the importance of environmental policy (many of the net gains from environmental policy do not show up as immediate monetary gains.

In the cultural heritage industry the basic premise was that cultural heritage is crucial for advancing sustainable development. Such benefit signals economic justification for investment in culture, while at the same time recognizing its intrinsic value and positive impact on the society. In dealing with cultural heritage there are objects, buildings, monuments and sites that are so valuable that they should be conserved through appropriate analytical approach such as cost-effectiveness or cost/benefit analysis. Finding the cheapest and the most effective way of achieving preservation goals is very important. This all require the use of appropriate valuation techniques (CASSAR, 2006)

In general, the need for economic valuation techniques to cultural or historic heritage is based on the following grounds. Agencies and Organization whose mission is to protect and preserve historic and cultural important buildings, monuments, and artifacts from the revenge of whether, pollution, development and even use by the general public must compete for needed resource with other social goals. Should we raise taxes to increase spending on cultural heritage, or should we divert resource away from some other worthy cause such as education, health care, or aid to the poor? What is the proper level of expenditure on cultural heritage? Given limited resource, priorities must be set among competing preservation and restoration goals. Given the countless different types of cultural heritage and the myriad pressing problems, which problems should be addressed first? At the same time, some question the proper role of government in providing cultural heritage goods. Should preservation and restoration efforts be supported by tax revenue, or should cultural heritage goods be self –supporting either through user fee or donation and subscription? If it is to be financed through user fee, how much should be charged? ((Jantzen (2006), Ready and Navrud (2002)) All the above issues necessitate the use of appropriate environmental valuation methods more especially non market valuation techniques

2.5. Classifications of value for environmental resource

For market prices to represent the correct value society attaches to the good, markets need to be competitive and work freely. In such cases, prices are taken as an expression of the willingness to pay for the good, which is the total value the buyer, has for the good. But in reality markets are far from being perfect, and even they do not exist for some class of goods. Therefore, to measure the

value people attach to goods, which do not have a perfect market, or any market at all; we need to understand the concept of value.

There is a widespread conception that the value of something in the economic sense is necessarily related to a market price. While value in general terminology has many meanings, in mainstream economics value is precisely defined, and this definition need have nothing to do with market prices. The basic concept of economic value is broader than the concept of a market, and admits a wider array of measurement techniques than use of market prices.

Generally, the economic concept of value is based on an anthropocentric, utilitarian approach that defining value based on individual preferences. While it does not encompass all possible sources of value, it is much broader than the narrow concept of commercial or financial value, and includes all values, tangible as well as intangible, that contribute to human satisfaction or welfare (Clem, 2010 and Mekonen, 2013)

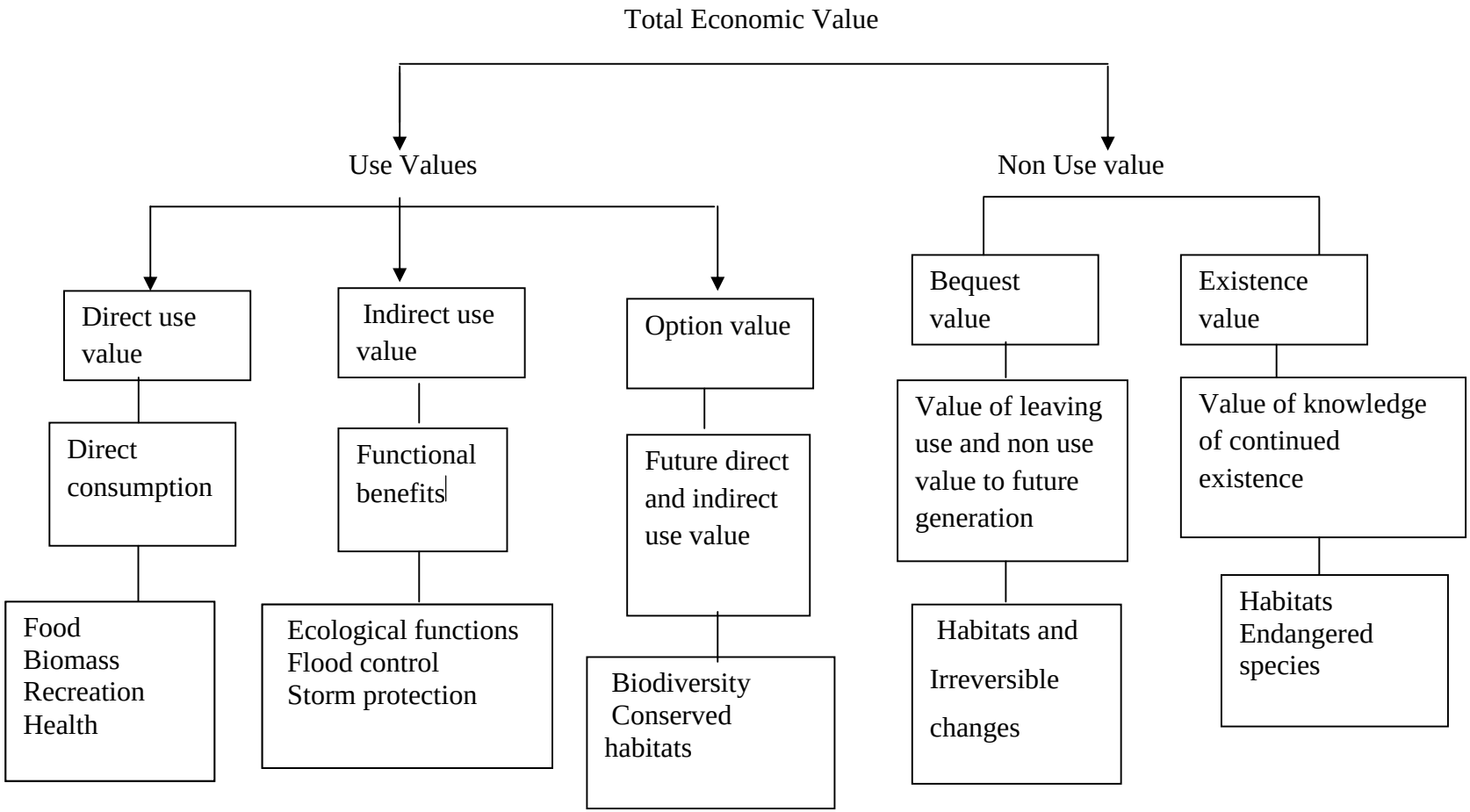
Total economic value

Total economic value = Use value + Non-use value

Human beings attach both use and non use value to many environmental resources. Use values are based on actual use of the environment and, non-use values are values that are not associated with actual use, or even an option to use environmental service (Aklilu, 2002 and Kanegae et al, 2011).

Total economic value = Use value + Non-use value

Figure 2.2.Total economic value for environmental resource



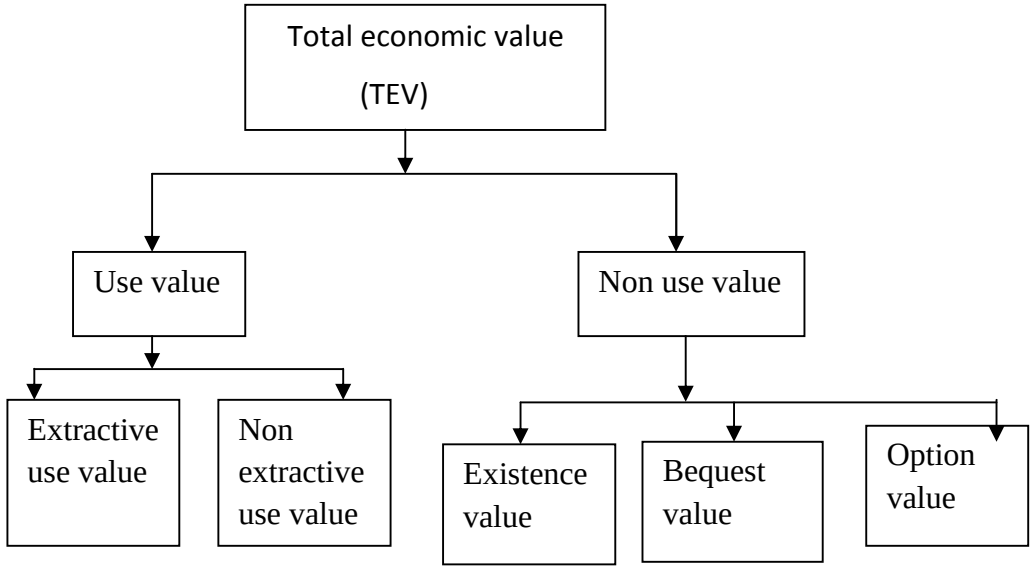
Source: Mekonen, 2012 and Aklilu, 2002

2.6. Total economic value for cultural(historic) heritage sites

The concept of economic value that is described in the above section can be illustrated to the case of heritage sites with a little modification. As it is stated on the above, the concept of TEV can be applied to the case of cultural heritage sites; it classifies the different types of value of cultural sites in order to measure the typically in monetary term. However, in order to use TEV concept for cultural heritage, several adjustments needs to be made (Olga, 2013)

The categories in to which the value of cultural heritage can be classified in these terms are still use and non use value. Therefore direct consumption or interaction with heritage is direct use value whereas external benefit gained from heritage is related to one of non use values, namely existence, bequest and option value.

Figure 2.3.The concept of total economic value for cultural heritage sites



Source: Olga, 2013 and Vecvagars, 2006, modified)

Use value can be derived when using a particular goods and service, and non-use value, on the other hand, does not necessarily require the use of the good. The use value can be subdivided further into extractive use value and non-extractive use value. Extractive use value, also called direct or consumptive use value derived from the goods, which can be extracted from direct consumption of the asset. For example, historic cultural site would provide extractive use value from renting the space, thus, generating revenues. The category of extractive use value is the easiest to measure due to observable prices captured by the market transactions (Vecvagars, 2006)

Differently from extractive use value, non-extractive use value, also known as indirect or functional value, is much harder to measure because it derives from the benefit of visiting the site.

For example, visitors to a historic part of a city might enjoy the scenery without spending money. The use of the place is not captured by transactions in markets unless there is an entrance fee or ticket. Among non extractive use values economists identify aesthetic value (obtained when sensory experience is separate from material effect on the body or possessions) and recreational value (a result of different services, which a site might provide, and depends on the nature, quantity and quality of these services).

The other economic value of cultural or historic heritage is non use value that comprises option value, bequest value and existence value.

2.7. Valuation methods for heritage sites

According to the current paradigm in economics 'The environment is viewed as external to society, providing goods and services. Economics seeks to integrate this externalized environment into its own paradigm through the concept of valuation. This approach sounds reasonable on the surface. Society should place a monetary value on the goods and services provided by the environment (including non marketable goods and services) and on the effects of human activity on the ability of the environment to provide these goods and services. There are two principal categories of methods for estimating the values of non-market goods: stated preference and revealed preference (Dosi, 2000; Jantzen, 2006; Michelle et al, 2003 and Mesfin, 2010).

2.7.1. Stated Preference Methods

It is a method conducted by directly asking individuals what value they attach to unmarketable environmental services, and to express their preferences towards changes in service flows. Stated preference methods of measuring non-market values use surveys or interviews to ask people directly about their willingness to pay for some good or service. The surveys typically involve a choice about a hypothetical or proposed situation.

2.7.2. Revealed Preference Methods/ indirect valuation method

The second approach (surrogate market valuation) of measuring non-market values are based upon inferring willingness to pay from people's actual payments for other goods or services that are associated with their use of the non-market resource. Broadly speaking, these related goods may

consist of: (i) environmental services' complementary goods (i.e. goods required to enjoy environmental services); (ii) substitute goods (i.e. goods which may replace the environmental services, or reduce/avoid the economic impacts of changes in service flow); (iii) other marketable goods providing indirect information about the environmental change's economic impacts. Again, the surrogate market valuation approach is potentially capable of providing reliable welfare measures only if the value of the environmental resource under consideration is revealed by related market behaviour and market prices (Abelson and Dominy, 2001; Dosi, 2000)

The following table show different categorization of the value of cultural heritage and there corresponding valuation techniques according to total economic value concept (TEV).

Table 2.2.Value and valuation methods for cultural heritage sites

Categories of value		Indicators	Valuation methodology
Use value	Extractive/consumptive	Archaeological treasures, historical exhibits, structures (tangible resource)	Market pricing methods
	Non extractive	Transportation cost, opportunity cost, access fee	TCM, Hedonic pricing, CVM
Non use Value	Optional value	Willingness-to-pay to avoid damages to cultural resources	CVM
	Existence and and bequest	Willingness-to-pay to avoid damages to cultural resources	CVM

Source: Michelle et al, 2003 and Olga, 2013

2.8. The travel cost method and approaches of TCM

The Travel Cost Method (TCM) is a revealed preference valuation method used for non-market valuation, which measures the value granted to environmental service through user's effective behaviour. As shown from various literatures, the method began in 1947 from a letter by the economist Harold Hotelling to the director of the US park service. The intuition underlying the TCM is simple. Even when entry to a given heritage site is free of charge, individuals willing to enjoy environmental attributes generally need to afford economic costs. Besides out-of-pocket expenditures (entry fees, on-site expenditures and outlay on capital equipment), individuals need to

use other ‘inputs’, such as time, to gain access to a recreation site. According to Clawson and Knetsch(1996) travel costs consists the sum of distance travelled costs, time taken costs and entrance fees costs (Sitotaw, 2003). Specifically, the total sum of expenditure of services obtained from a site visit consists of the following four elements: direct travel expenses (e.g. money expenditure on fuel transport, hotels, etc.), time cost of travel (opportunity cost of travel time), cost of time spent at the site (opportunity cost of on-site time) and, entrance fee including others on site expenditures.

This method has been used extensively especially in richer countries to estimate environmental benefits at recreational sites and in several developing countries where higher incomes and rapidly developing markets have been associated with growing demand for amenities such as scenic views and recreational areas (Dosi, 2000; Jantzen, 2006). In addition, it can be applied to valuation problems associated with the change in the quality of a site, or service flows of an existing site.

Travel cost methods can be broken into two types of approaches, mentioned as the zonal and individual travel cost methods. Individual travel cost model are used for unique sites, where an individual visits one site on multiple occasions to experience its attributes (Mathis et al, 2003). A typical individual travel cost survey will ask visitors about many of the following topics: location of the visitor’s home or how far they travelled to the site, how many times in the past years or year they visited the site, the duration of the trip, how much time they spent at the site, travel expenses incurred on the trip, the visitor’s income, wage, or other information on the value of their time ,various socioeconomic characteristics of the visitor, availability of substitute sites & the like (King & Mazzotta, 2002).

Under the zonal travel cost model the dependent variable is the number of trips taken to the site by the population of a particular region or zone. While the ITCM is more appropriate for local, frequently visited, sites, the zonal method is more appropriate for sites visited infrequently by travellers from afar. The ZTCM aggregates individual visitors who live near each other into groups or zones of origin. The quantity variable used in the demand function for the on-site experience is measured as visits per capita or zonal population, and the price variable is the average price per visitor per zone calculated as the sum of round-trip travel distance costs, admission fee and usually some measure of travel time to and from the site. One of the major advantages of ZTCMs are that they require less intensive data collection procedures & it is characterised with loss of data variation due to zonal averaging. However the zonal method has its major problem of how to treat zones with zero visitation rates (Smith, 1989)

2.9. Key attributes and assumptions under travel cost model

To be confident about our welfare calculations (i.e. the goal of travel cost models) the circumstances of visitation choice should approximate the conditions assumed in the model. The following conditions ought to hold to allow the calculated surpluses to stand for welfare measures:

i. Admission fees (often low or non-existent) to the sites are an inadequate measure of the value of a visit to cultural/historic heritage site and the cost of round-trip travel is a proxy measure of WTP to visit a site. Visitors will react to changes in gate fees in the same manner that they react to changes in travel cost.

ii. The main assumption under travel cost model is the weak complementarities concept. The method assumes weak complementarities between the utility from visiting the site and (trip) consumption expenditure. This implies when consumption expenditure falls to zero, the extra utility of visitation is also zero, or alternately the site will only be valued if consumption expenditure is positive (Hanley and Spash, 1993).

iii. Unlike pure recreational sites visitor's utility from the journey to visit cultural heritage sites is insignificant as compared to their purposes and benefits from historic heritage sites. This is because, the benefits of historic heritage site is multi directional, where its recreational meaning is mostly low or insignificant.

iv. The importance of careful thinking about the value of time lies in its impact on welfare measures, not for its own sake. For many trips, the time costs are more important than the out of pocket travel costs, and ignoring the opportunity cost of time leads to overestimates of the welfare measures. However, the problem is the absence of consensus as to how time should be accounted for in TCM and there is no clear cut answer of how to solve the value of time and its opportunity cost (Haab and Macconnell, 2002; Cook et al, 2007). Generally, various sources proved the inclusion of wage to estimate value of travel time and the time spent on visiting the site. That is, explicitly incorporating travel time valuation in visitors' benefit analysis using wage seem superior to excluding it. Cesario (1976) has shown on the basis of evidence collected to date the value of time in respect to non-work travel is between one-fourth and one half of the net tax wage rate (Salles et al, 2012). This idea is motivated by the intuition that there may be some disutility from work, as well as empirical evidence from travel literature shows that the value of time is typically less than the wage rate (Haab and Mc Connell, 2002). In general the choice of the weight is quite arbitrary and open to question.

v. One of the major assumptions of the travel cost methodology is that only one site is visited per trip. In other word, all the travel costs are incurred exclusively to obtain access to the particular site being valued. However, if the site is remote but unique, some visitors would be from far distances and so the visit for them would be one of a group of activities and

other destinations. If a trip has multiple objectives, it implies the full cost of the trip is not an implicit price for the particular site under consideration. Allocating the full costs only to the particular site would provide biased parameters (it overestimates the visitation rate and economic value) (Nillesen et al, 2003; Ali 2007). With the above basic assumptions of TCM, it uses the costs of travelling and enjoying the site as a proxy for WTP for particular cultural heritage sites. And, the travel costs consists the total of distance travelled costs, time taken costs and entrance fees costs and other related costs (Sitotaw, 2003). Specifically, the total sum of expenditure of services obtained from a site visit consist the following four elements; direct travel expenses (e.g. money expenditure on fuel transport, accommodation, etc.), time cost of travel (opportunity cost of travel time) , cost of time spent at the site (opportunity cost of on-site time) and entrance fee (if any)

vi. Finally the demand equation is expected to be negatively sloped with the total expenditure of the traveller.

2.10. Advantages of the Travel Cost Method (see Andy Barlow, 2008).

1. The travel cost technique is relatively uncontroversial because it mimics empirical techniques used by economists to estimate economic values based on market prices.
2. Economists generally tend to prefer techniques of this sort because they are based on actual behaviour rather than verbal responses to hypothetical scenarios. E.g. Contingent Valuation Method
3. The method is relatively inexpensive to apply through on-site surveys providing large sample sizes and high response rates.

The results are relatively easy to interpret and explain.

2.11. Difficulties in the travel cost methods

1. The major limitation with TCMs is that they estimate visitor-use benefits only, and in the case of cultural heritage sites, non-use benefits may be substantial (Smith and Poor, 2004).
2. The other complexity in the travel cost model is the treatment of opportunity cost of time. Even if its importance in travel cost calculation is accepted by many studies, the techniques of valuation are still controversial, and mostly it is open to the researcher.

Finally, the TCM is faced with the problem of multiple site and multiple purpose visitors

2.12. Empirical literature review

2.12.1. Studies using travel cost model to measure the economic value of natural heritage sites

Herath & Kenned (2004) estimated the economic value of Mount Buffalo National Park with the travel cost and contingent valuation models. The park is a popular site for recreation throughout the year in Victoria, Australia. Data for the TCM were obtained by an intercept survey from a sample of 324 visitors to the Park in 1997–98 and the study adopted a zonal travel cost model. Respondents were selected at random at a number of different locations in the park. The data required for the ZTCM are the total number of visitors to the park over a given period, the places from which the visits originated, the average costs incurred in travelling to the site, other costs (including extra food), the journey time and the time spent at the recreation site and other socio-economic variables (such as family size, age, income level, employment and attitude to the payment of an entry fee)which were collected via the survey using a pre-tested questionnaire at the site. Thus, the data were used to estimate the demand curve and the consumer surplus.

The opportunity cost of time was incorporated by taking 50% of the after-tax wage rate per hour. Two sets of regression equations were used, one relating visitation rate to average travel cost without time cost and the other including time cost. The study applied the linear, log-linear, linear-log and the double-log functions and shows that the log-linear function had the highest $R2$ of 0.99 and the linear function had a $R2$ of 0.95. However, the travel cost variable was significant in all four functions and hence all functions were used to compute the CS enjoyed by the visitors to the park. To calculate CS, the area under the demand curve was calculated by integrating the function between an upper and lower point of truncation of Aus$100 and Aus$0. The CSs are Aus$17,057,625, Aus$20,804,466, Aus$21,501,628 and Aus$38,445,698 for the linear-log, double-log, linear and the log-linear functions respectively. According to the study, the consumer surplus (CS) is very sensitive to the functional form and whether time cost is included or not. The CSs are much higher when time costs are included, and the log-linear function gave the highest CS without time costs.

Loomis et al (2000) conducted a research that tests the significance of multi-destination and multi-purpose trip effects in a travel cost method demand model for whale watching trips.

The study finds mixing primary and multi-destination trip visitors increases the estimated consumer surplus per trip. According to the study, this increase is at least 20% to as much as 70%. The study

has also tested to see if these multi-destination trip value differences were statistically significant, they were not. While the different consumer surplus estimates were not significantly different, they could be policy relevant differences. Omitting multi-destination trip users will yield an unbiased estimate of per trip consumer surplus, but omission of these multi destination trip users will result in an underestimate of total site benefits. Therefore, multi-destination users model have a more accurate estimate of total site benefits than would occur if the multi-destination visitors were excluded. The primary purpose trip values from the standard TCM and simple generalized TCM model for joint benefits are identical at $43 per person per day however the more general models avoid underestimation of total recreation site benefits that would result from omitting the consumer surplus of multi-destination visitors

Mendes & Proença (2005) estimate the average per-day per-visitor net benefit of non-consumptive wildlife-associated recreation for a Portuguese national park defined as the amount of money by which an individual is willing to pay for recreation services produced in the park that exceeds what the individual must pay at the present to produce those recreation services in the park. To estimate the average marginal CS of visitor, they used a single, on-site individual TCM model that predicts the number of days on the park per visit as a function of the price (cost) of each recreation day, and of other characteristics of the visitor. The price (recreation cost) variable includes on-site and travel out-of-pocket costs, as well as travel and on-site time opportunity costs, and not only travel costs. By applying count-data travel cost methods to a truncated sample of visitors, estimated the average consumer surplus per each day of the visit. Result of the study showed if a person in the sample visits the park, has an average stay of 4.51 days giving a CS per visit of €873.30, varying between €183.47 and €1564.07 (€ imply euro). To gain a more precise idea about the values involved, approximately 12,000 visitors were camping in the PGNP(name of the recreation site) generating a recreational value per day of visit of €2,324, and assuming an average 4.51 days visit a value of €10,461,960. They indicate that PGNP visitors seemed to receive a considerable amount of benefit from recreational use of the park enabling to conclude that the park has a hidden economic value. They suggest that management resource shall continuously be allocated to PGNP preservation, and to develop recreation activities, specifically eco-tourism, as a mean to develop the local area in a sustainable way, and in full respect of the conservation goals. In addition, they commented on the large estimated use value of the park as an indicator for undertaking major improvement work for the management of the existing natural facilities like the adoption of entry fees and per-use-day fees that would probably be economically and socially justifiable to guarantee more revenues for park management.

Fleming and Cook (2008) measure the recreational value of Lake McKenzie in Australia. In this paper a commonly used non-market estimation technique called the travel cost method was applied to estimate a recreation use value for Fraser Island in terms of consumer surplus. They also indicate that the value does not represent the total economic value of the of the Island as non-use values and, for example, scientific, medicinal, and ecological values have not been included. A proportion of this value was then allocated as a value estimate for Lake McKenzie.

In this paper the total travel costs for both single-site and multiple-site visitors were used and then the resultant zonal consumer surplus values were adjusted according to the average proportion of the total trip time spent on Fraser Island. To obtain recreation value estimates for Lake McKenzie the appropriate proportion was calculated using two methods – a measure of satisfaction as reported in the survey, and a measure of time spent at the lake as a proportion of total time on Fraser Island. Once adjustments for multiple-site visitors are made, the method yields recreational values of the Lake ranging from $13.7 M. to $31.8 M per annum, or from $104.30 to $242.84 per-person per-visit. They indicate that visitors place a high value on Fraser Island and their visit(s) to Lake, management therefore has an obligation to preserve the area for future generations, as well as allow access to the present generation.

The consumer surplus estimates for Lake McKenzie using the two methods of proportioning value have yielded values that differ greatly. Using the satisfaction measure obtains a consumer surplus more than twice the size of that obtained when the proportion of time is used. They explained that since vehicle-based visitors do not stay overnight at the Lake, they must drive from their accommodation, and so all trips are day trips. As roads on Fraser Island are either rough and narrow or tide dependent, the amount of time that people can hope to spend at Lake McKenzie is generally limited to a few hours, and this limitation forces the proportion of time spent at Lake McKenzie to be a small proportion of total time spent on Fraser Island, resulting in a smaller consumer surplus.

They concludes that the higher consumer surplus of $242 per-person per-visit obtained from the respondents' valuation of their satisfaction may be the more accurate value. If there were no limitations for the time spent at the site, the two methods could be alternatives. They also commented on what importance these estimates provide relating to numeric base decisions to manage the environment of Lake McKenzie

2.12.2. Studies using travel cost model in valuing the benefit of cultural heritage sites.

Akhmad et al (2009) conduct a research with a title 'Economic Valuation of World Heritage Site, calculating the economic value of Chandi Borobudur recreational site from visitor's point of view using two methods of valuation, i.e. travel cost and choice-based conjoint analysis. The study applies non-probability sampling technique i.e. accidental sampling or convenience sampling. That is, not all populations have the same probability to be selected as the sample. The amount of data obtained to be used from each model was 177 for travel cost method and 5664 for choice-based conjoint analysis however the application of the Stata program drop the incomplete respondent data, so that, the data used in this study has 156 observations for the Travel Cost Method and 4988 observations for Random utility model.

The result from the travel cost model shows that, after calculating total annual WTP of visitors, the amount of CS (ΔABC) from domestic and foreign visitors respectively per year is Rp 4,075,320 and Rp 15,890,740 (where rupee is an in Indian money name). Aggregating the benefit for all visitors of a year, then the PT. TWCBPRB generate additional revenue approximately Rp 9.27 trillion per year with proportion, Rp 7.79 trillion per year from domestic visitors and Rp 1.48 trillion per year from international visitors. In addition the result of the study shows that three variables significantly affect tourist's demand for the site. Travel cost of all visitors, travel cost of only domestic resident and age are the major factors that significantly and negatively affects tourists demand for the site.

Poor and Smith (2004) tries to estimate the consumer surplus welfare estimate of cultural heritage site. The research is conducted in the case of Historic St. Mary's City of Maryland. The main purpose of the paper was to apply a revealed preference zonal travel cost model to estimate visitor benefits associated with a cultural heritage site, namely HSMC in southern Maryland. According to the paper, zonal travel cost model is used because multiple individual visits are infrequent to this unique site.

The visitor data for this study were derived through distribution of survey questionnaires to individual visitors. 92 observations are selected based on year specific zones of origin, for which 35 were from the year 1999, 23 were from the year 2000, and 32 were from the year 2001. The zones of origin were derived from completed and returned visitor questionnaire for 328 visitors, representing 1.25%, 0.9% and 1.3%, of the total paid individual visitors to HSMC in the years 1999, 2000 and 2001 respectively. Three functional forms were used to estimate the econometric

model of HSMC visitor demand. The three functional forms estimated are linear; semi-log where the dependent variable is transformed by taking the natural logarithm; and the third is a log-log model where both the dependent and continuous independent Variables are transformed by taking the natural logarithms.

The result of the study shows that, the coefficient estimate associated with the travel cost variable was significantly different from zero in the three model, and the price or travel cost coefficient estimate for each of the three model specifications, was consistent with demand theory, in that the quantity of visitors per 1000 zonal population was inversely related to price or travel cost. In addition, for all the three models the income variable coefficient estimates indicated an inverse relationship between income and the quantity of visitors per 1000 zonal population. As per the paper one possible explanation is indicated. The remote & rural location of HSMC may not be as attractive to higher income, urban individuals.

The three-year average, annual, CS estimates for individual visitors are $19.26, $9.93 and $8.00, for the linear, semi-log and log-log models, respectively. The estimated aggregate three-year average, annual CS benefits for visitors to HSMC, for the linear, semi-log and log-log models are $176,551, $94,510 and $75,493 respectively. The paper also notes how the functional form chosen for the visitor demand equation can have a significant influence on the visitor welfare benefit estimates as indicated above.

Alberini and Longo (2006) conducted a travel cost study with the purpose of placing a value on conservation of cultural monuments in Armenia. The study gathered information about trips to four cultural heritage sites by administering a carefully designed questionnaire to domestic visitors that were intercepted on site. A total of 468 respondents are taken as a sample size.

Applying truncated Poisson model, the study found travel cost as the strongly significant factor determining visit to the site with a magnitude -0.1263. Trip frequency is also negatively related to income. The paper also indicates welfare estimate from the sites current condition; the value of accessing the site in its current conditions is over 21,000 AMD at Garni, 19,000 AMD at each of Haghardzin and Khor Virap, and 13,850 AMD at Tatev (AMD is Armenian currency). In addition the paper shows the effect of undertaking different scenario. It is find that, all else the same, people equally value the scenario with improved tourist service and the scenario that enhances the cultural experience, and that these are valued a little more than the infrastructure-enhancing scenario. For example, the welfare change associated with implementation of the culture-enhancing scenario at

Garni is 8,871 AMD. It is 6,458 AMD for the infrastructure-enhancing program, and 10,346 for the service-oriented program.17, 12, and 20 US dollars respectively.

Rebelo et al (2010) conducted a travel cost method for the economic Valuation of Cultural Heritage site: an Application to a museum located in the Alto Douro Wine Region, Portugal. The study used the Poisson model to estimate the demand function due to the absence of over dispersion. Travel cost, gender, educational level, satisfaction level, age and income is considered for the independent variables. Where gender, educational level and travel cost were statistically significant, the rest are not. The result of the study also proved the negative effect of travel cost on number of trips to the museum.

2.12.3. Studies using travel cost method in valuing recreational benefit of heritage sites in Ethiopia.

A few studies have looked in to the valuation of recreational benefit in Ethiopia. Specifically, measuring the value of cultural heritage site is too much insignificant. Hence, not much finding (research) is found that apply travel cost method to value the economic benefits of cultural heritage sites like Monuments: architectural works, works of monumental sculpture and painting, royal enclosures which are of outstanding universal value from the point of view of history, art or science. Therefore, this section will only assess how travel cost method is used to measure the benefit of sites that provide recreational service in Ethiopia.

Mesfin (2010) provides quantitative measure for estimating the recreational value of Wondo Genet recreational site. In doing so, the study applied two standard valuation methods in environmental economics i.e. travel cost and choice experiment. The result of the study shows that travel cost, income, education, and cost of accessing a substitute site and acquaintance with the site are the important determinants of the recreational determinants of the site. The recreational benefit computed from the regression analysis indicates that the annual per person on site recreational benefit amounted to Birr 424, and the aggregate annual benefit of 7899,301.

Sitotaw (2003) conduct a study that estimate the economic value of outdoor recreational site. Thus the study provides the monetary estimate of the use value of Wabi-Shebele Langano recreational site. Taking in to account the count and truncated nature of the dependant variable, the study applied the truncated Poisson model. The regression result shows that travel costs, visitors acquaintance with the site, income, family size, age, level of education, being a head if ten family and availability of substitute site were important determinant of the recreational demand of the site.

Furthermore the recreational benefit computed from the regression analysis indicated that the on site recreational benefit per visit amounted to Birr 751.95 and the expected total annual benefit of the site was Birr 8685,774.

Andualem (2012) in analysing the total economic value of Addis Ababa Zoo Park attempted to measure the use value of wildlife through the employment of the travel cost methods. This study tries to measure the total economic value of Addis Ababa lion's zoo, by taking 150 visitors as a sample to assess consumer WTP for the direct use value. An on-site truncated Poisson model of TCM is adopted to evaluate the recreational benefit of the site. According to the study, the demand function for trip is preferred to be semi log as compared to other functional forms like linear, quadratic and log-log forms since it reduce hetroscadesticity and multicoolinrearity problems, and gives efficient and consistent estimates. The result of the study shows that the mean consumer surplus per trip to be 10 ETB and the total recreational benefit of the site is approximately estimated to be 11,767,287 ETB and the recreational benefit or consumer surplus is expected to be 5,603,470 ETB.

Terefe (2000) examined the economic value of Tis-Abay Water Falls using TCM. In his effort to measure the value of outdoor recreation for this site, 140 visitors were used as his sample groups by residence on the basis of distance from the site. In the interview, socio- economic demographic and attitudinal information were gathered from the respondents.

In his model, he took income, taste, availability of substitute sites, quality and population in addition to travel cost to explain visitation rate /1000 population at zero admission fee. Then, TCM was estimated using semi-log independent functional form after dropping insignificant variables.
The study indicated that the optimal gate fee is Birr 40 and the maximum expected revenue for the site is Birr 85,812,000 (=40x21378) where 21378 is the number of total visits per year. The economic value of the park was estimated at Birr 2,181,998,095 per year based on the demand curve.

CHAPTER THREE

METHODOLOGY

The purpose of this chapter is to describe in detail the research methods used to determine the economic value of Fasileades Royal enclosure site in Gondar. The first section of this chapter provides some background information of the study site and methodological framework for conducting proper Travel cost model. On the second section data collection and analysis procedure adopted in this study was presented. The final section presents the concept of travel cost model as a tool to estimate the economic value of historic heritage site and discusses welfare calculations related to this model.

3.1. Background information of the study site

The founder of Gondar, Emperor Fasileades, tiring of the pattern of migration that had characterized the lifestyle of so many of his forefathers, moved his capital to Gondar in 1636; After his foundation, Gondar, set in a landscape of incomparable beauty, became the royal capital of Ethiopia in the 17th and 18th centuries. By the late 1640s he had built a great Palace, which stands in a grassy compound surrounded by other fortresses of later construction (named the Royal Enclosure or Fasil Gebbi). The Royal enclosure (Fasil Gebbi) consist six major building complexes and other ancillary buildings, surrounded by a wall 900 meters long, with twelve entrances and three bridges. It was larger and more impressive than any structure in Ethiopia up to that time. Nobody has yet discovered for certain why Fasileades chose this place his capital, even more remote in 1636 when he moved his court here. Nor has anyone traced the true source of the architecture which inspired the castles. The castles stand in rolling park-land, within fortified walls. As you pace the empty halls, audience chambers, and battlements, your imagination will stir to the echoes of long ago battles and court intrigue. The two storied castle of Fasileades, with a rectangular corner tower, three smaller domed towers and two meter thick stone walls, was so impressive and one of the most marvellous of buildings. Another edifice of the same era, the Bathing Palace, stood in a pool filled with Water drawn by canal from a nearby river. It could only be reached by draw-bridge. The pool is generally empty today; however, once each year during the annual Epiphany, Timket celebrations, it is filled again. (UNESCO courier, 2008)

Gondar continued to grow under the leadership of Fasileadas's son, Yohannes I, and his grandson, Iyasu I. Book-lover Yohannes I inspired the building of another two-storied

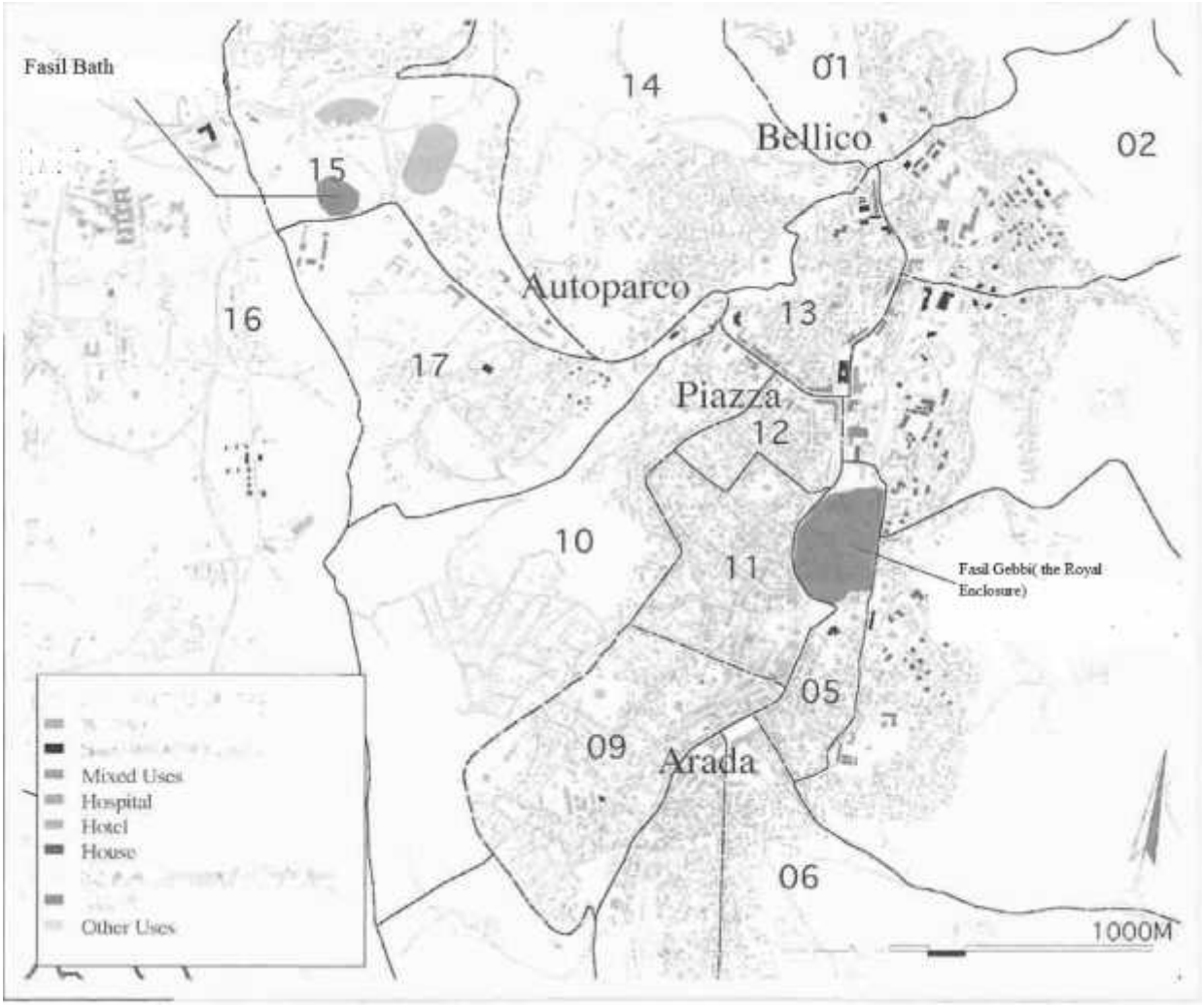
castle as his library, as well as a larger castle with an imposing tower, designed and built by master mason Wolde Giorgis, for use as a chancery.

Iyasu I (1682-1706), the greatest of the Gondar rulers, endowed the city with another large castle which was built next to his grandfather's palace. Ivory, gold and precious stones were inlaid within its interior and so stunning was it all that it was described as more beautiful than the house of Solomon. Later rebuilt it was then decorated with the many fine religious paintings, some on the ceilings, which can be seen today.

After the death of Iyasu I, the growth of Gondar continued under the leadership of emperor Bakaffa and his heirs; was marked by the construction of more elegant if less solid castles, including the two-storied Palace of Mentewab. Later Bakaffa's son, Iyasu II, devoted himself to the preservation of Gondar's fantastic historic and architectural legacy hiring a group of Ethiopian and Greek craftsmen to restore Fasileadas's old palace. (Awaze tours, 2014 and UNESCO, 2008)

As a true evidence of an architectural beauty deeply marked by the country’s ancient civilization, the Royal enclosure (Fasil-Ghebbi) was registered by UNESCO as s World Heritage Site in 1979. (World Bank, 2006)

Figure3.1.Gondar City Map



Source: Tomohiro, 2006

Until now (still the survey period) no map is prepared for the Fasileades Royal Enclosure Site including the bath

Hence, the primary purpose of this study was conducting a non market valuation technique specifically travel cost method to measure the economic value of this historic heritage site.

3.2. Methodological framework to conduct proper TCM

The steps involved in conducting a travel cost study can be stated as follows:

1. Description and identification of the site:

A clear description of the site to be surveyed is important both for interviewees and interviewers to know which the object they are talking about is. It will also help to identify t where interviews will be done. Sites could be identified on the basis of the following criteria: suitability of the area for tourism, the current status and importance of the site and, actual flow of tourists/ visitors of the site.

2. Definition of the environmental good / service to be valued:

The good or service to be valued should be defined so that no misunderstanding will occur in the valuation of the site under consideration. Goods or services of a given recreation site can be the whole area of the site or one of the particular services provided by the site.

3. Creating a survey instrument(Questionnaire design):

Formulation of the survey instrument is an important task in conducting TCM. Since the study is based up on primary data, designation of the questionnaire in appropriate way is the first obligatory action. Information to be collected can be subdivided into compulsory and non-compulsory information. Compulsory information includes the origin of visitors, mode of transport of visitors used to get into the site, individual socio-economic features (e.g., age, education, income, number of family members, etc.) that are supposed to be important determinants in visitors' behaviour towards recreational use; non-compulsory information involves travel cost and opportunity cost of time (i.e. those variables that can be estimated outside of the questionnaire). Then, the information provided by the questionnaire will allow the researcher to derive the demand curve for the recreation site.

4. Choosing and conducting an appropriate survey technique:

Once the questionnaire is developed the next task of the researcher is to choose and apply appropriate survey techniques. Before proceeding with the survey, it is recommended that the type of interview and the sample of interviews should be defined. There are a number of survey techniques, almost three i.e. mail interview, telephone interview, on & off-site face-to-face interview. However, since the aim of this study, is to measure the recreational value of the site through the data by individual who are visiting the site, it is recommended to use on-site-face-to-face interviews. The sample size is also a very important point to address for a proper and reliable estimation of the economic value of the site. The enumerators should be trained to avoid risks of misinterpretation of the questions and responses and to collect the requested information without influencing the respondents' answers.

A pre-test should be conducted to check the goodness of the questionnaire. A plan of action should be formulated stating the number of interviews to be undertaken per day, how the interviews should be distributed over the days, the weeks, the months; and when the enumerators should interview the visitors.

5. Statistical description of the sample: Under this section the data is organized and compile and a database is created using a spreadsheet. Some statistical description, measures such as mean, median, variance, etc will be carried out. Accordingly, the behaviour of specific variable will be

elaborated and their consistency and suitability will also be checked through appropriate statistical analysis.

6. Estimation of the demand function:

TCM studies use count-data models as the dependent variable, i.e., the annual number of trips to the site as this takes a few countable values. The Poisson model as well as the Negative Binomial (NB) model allow taking into account the non-negative integer nature of the dependent variable. Hence, it requires the use of Maximum Likelihood Estimation (MLE) methods.

7. Calculate the consumer surplus (CS) per individual and Extrapolate CS to expected visitors per year.

In this section average visitor CS by zone or individual CS can be calculated accordingly. If ITCM is employed, the individual CS is computed by calculating the area under the demand curve and above the average travel cost. Then, the individual CS resulting from the analysis will be multiplied by the total number of visitors of the site during one time period (usually one year) to get the total annual CS.

8. Interpretation and presentation of results:

The final step in TCM is explaining, interpreting and comparing with those of other similar studies (if any).

3.3. Data and methods of data collection

To measure the economic value of the Fasileades Royal Enclosure site, both primary and some secondary data is used. Primary data on the costs incurred by each individual while travelling to the site, on visitor's opinions, their socio economic and demographic characteristics were collected. The collection of the primary data is carried out through on site face-to-face interviews of the visitors of the site using structured questionnaire which is designed and administered to a sample of visitors at Fasileades Royal Palaces. Then, on the basis of the information obtained from this questionnaire visitor's demand function was estimated, and accordingly the annual use value of the site was calculated.

As it is presented in the appendix, the questionnaire is divided into three sections. The first section gathers information about visitor's travel characteristics, time and opportunity cost of time, and questions concerning distance, travel costs such as cost of transportation, cost of accommodation, fuel cost, food and drink, and others. On the second section, questions concerning visitor's opinions on the standard of the site, how and why it is important to visit historic heritage sites, and on the

purpose of the present visit as well as their group characteristics were asked. Finally, on the third section, they are requested for their demographic characteristics.

3.4. Survey and Sampling design

The survey was carried out through on site face-to-face interviews of the visitors of the site using structured questionnaire during the survey period. In designing the questioner, all the necessary variables that are used to establish the demand equation of the site was captured i.e., the questionnaire include detailed socio-economic characteristics of visitors (i.e., age, gender, marital status, family size, education level, income, and so forth) and main features of visits (i.e., number of visits per year to the site, the origin of visitors, number of other possible sites visited in the same trip experience, money and physical time costs of travel, and other visit expense, etc.)

Even if it was difficult to obtain complete and organized prior information on the flow of tourist, from the sales report of the site it was possible to get the monthly flow of foreign and domestic tourists. The report indicated that unlike the flow of foreign tourists, the monthly flow of domestic visitors is almost equivalent for each month except the month of January due to the epiphany. On this point, the sampling procedure must deliberately avoid sampling during special events like the epiphany, as the large number of visitors for such an event had the potential to excessively skew the results. Therefore, the data was collected within three months from March-20014 until May-2014 where the target population of the study was those visitors who just did a visit on the royal enclosure during this survey period.

The major problem in the sampling process is the choice of appropriate sample size. As much as possible, the sample size must be optimum i.e. one which fulfils the requirements of efficiency and representativeness.

Cohen's (1988) in his power analytic approach for sample size determination has developed a new two-step rule-of thumb that helps to find the number of subject that is needed for a regression analysis. . Cohen's procedure requires the application of the following two steps.

Step one: the determination of lambda (L)

According to Cohen's (1988), lambda (L) is 8 with a single predictor. For regression analyses with 2 through 10 predictors L increases for each additional predictor by 1.5, 1.4, 1.3, 1.2, 1 .l, 1 .0, .9, .8, and .7, respectively

Algebraically, for m < 11 $L=6.4 +1.65m-0.05m2$

Where, m is the number of predictors

Step two: computing required minimum sample size (N)

$N \geq {}^{L}/_{f^2}$ where $f^2 = {}^{R^2}/_{1-R^2}$

Here, f^2 indicate effect size, the degree to which the criterion variable is related to the predictor variables in the population. Cohen in his example took a medium effect size of 0.15 for f^2

Therefore, sample size (N) $=N \geq {}^{L}/_{f^2}$:

Lambda (L) in the case of our model will be,

$$L=6.4 +1.65m-0.05m2$$

$$L=6.4 + 1.65(10) -0.5(102) =17.9$$

Given the index of medium effect size, that is f^2 of 0.15,

$$N=\frac{17.9}{0.15} \geq 119$$

This implies for ten numbers of predictors a minimum of 119 respondents must be included in the sample. However, in order to accommodate dropping problem, a total of 155 domestic visitors were considered for the sample respondents.

Cohen's (1988) another model of sample size determination, power analysis model, which is computed through the choices of values for alpha (the traditional level of significance) at 0.05, power (probability of not committing a Type I1 error) at 0.8, and medium effect size (f^2) of 0.15 provided 117 number of respondents, a result that is close to the value of sample size derived from conducting new rule-of-thumb (Green,1991)

3.5. Data analysis

This study used descriptive statistics and econometric analysis. A descriptive statistics was applied on the socio-economic, trip related characteristic and opinions of the visitors. And the econometric analysis was conducted for the estimation of visitors demand to the study site and computation of use value and consumer surplus.

3.5.1. The Travel cost method

A revealed preference approach to non-market valuation has been widely used since the famous Hotelling's letter of 1947 to the Director of the Nation Park Service of the United States suggesting a travel cost recreation demand approach to value the natural resources (Kennedy & Herath, 2004). Since then, the application of the TCM has been widespread in valuing numerous types of

environment resource. Among others, valuing the economic benefit of cultural heritage sites (monuments, museums, archeologically sites and others) be one of the most prolific areas of TCM applications (Michel et al, 2011, Phaneuf & Smith, 2004).

The theoretical basis of the travel cost method centres on the economic concept of utility maximization. The basic concept is that economic utility maximization is subject to budget and time constraints of an individual (Shrestha, 2002 and Dorison, 2008).

Equation (1) expresses a basic utility function

$$Ui = f(Xi) \quad \ldots\ldots (1)$$

Where U_i is an individual's utility that is a function of a set of variables (Xi; income, employment, visits to heritage sites, etc.)

The travel cost method assumes that increasing trip costs will decrease the number of trips a participant can afford to take to their site of choice, all else equal. As a result, a participant maximizes utility by taking a number of trips that reflects his or her budgetary capabilities and appreciation for the activity or site selection. The first step in a travel Cost study (estimating a trip generating function) involves the choice among the two types of travel cost functions; one based on an individual model, the other based on a zonal model. The type of function determines the dependent variable, which is either the number of trips made by individuals (ITCM) or the number of trips made by those living in a geographical zone (ZTCM). Even though the nature of the data is the main determinant, many literatures outweigh the advantage of using ITCM with the following ground. These are problems associated with the methods by which zones are defined, the use of an average value of visitations as a dependent variable, problems associated with aggregation, omission of individual specific explanatory variables, and bias in the R^2 statistic arising from aggregating individual responses into zonal average figures.

Therefore the individual version of the travel cost method while it requires a more labour intensive data collection process; it is favoured in the technical literature. Even though, information on all the relevant variables must be collected from each visitor which increases the length of the questionnaire, the cost of the survey and more complicated analytically, it yields more precise results than the simple zonal model.

ITCM considers individual's number of trips (V_i) as a dependent variable and travel cost (TC) & other socio-economic characteristics of visitor's (X) as independent variables.

$$Vi = f(TCi, Xi,) \quad \ldots\ldots (2)$$

Where i stands for individual i, TC is travel cost and X represent socio economic characteristics

The methods basic premise is that individual visitors perceive and respond to changes in travel costs to the site just as they would perceive and respond to changes in an entry fee, so the number of trips to the site should decrease with increases in distance travelled and other factors that raise the total travel cost. This negative relationship will be used to estimate the total benefits derived by visitors and under certain assumptions extrapolated to the general population. It is the weak complementarily of the marketed goods and services required to get and to enjoy that make the estimation of the demand curve for the site, and from it, a measure of society's benefit possible. In this sense, it is clear that the measure of value computed with the TCM is a measure of only the user value of the site.

Travel cost(TC) include the entrance fee to the site, the cost to travel to the place itself (travel costs of vehicles used) , the opportunity cost of travel time, the cost of lodging and food if more than one day, and parking fees, cost of guide service, and forth. The total of all costs is then able to be called as the total cost of visiting the site. For those visitor's using public transport, they are asked to state the amount of money they have spent for the round trips. Whereas, visitor's with their own car was asked to show their total fuel expenditure. Alternatively, individuals are asked the distance it takes them to get this royal enclosure from their initial point with their return included. Then, the average price per km which is obtained from the regional transport office was used to compute the total transport cost.

3.5.2. The valuation of time costs in the travel cost method

One of the major controversies in the valuation of time is whether leisure time is 'free' time or time with an opportunity cost attached. Remembering that time used for leisure include the time to access a particular site, leisure as a matter of an activity of time free of work, or of time off the job, then it might be conceivable to put a zero value on both travel time and on-site time. Indeed the idea that free time is intended means it is time off work, or not related to work. The time used in the consumption of leisure is considered a planned input (Grazia, 1962). Although the individual is not at work, the time is not free (Tuour and Espineira, 2008). It is already paid for by the length of time devoted to work. This is especially so if time taken away from work is remunerated, as it is for those who are on a fixed work-holiday schedule. However, since time used for visitation or recreation can be allocated to alternative uses, even for these types of individuals time spent on a given trip must have a cost.

Economists have long recognized the important role played by the opportunity cost of time in trip demand models due to the time-intensive nature of goods such as visiting cultural/historic sites. The time spent visiting a particular site is an important component of the travel cost Therefore, the correct specification of which, is instrumental in calculating accurate welfare measures (Azevedo, 2011). Despite recognizing its importance, no consensus has been reached as to the appropriate method of dealing with the opportunity cost of travel and on site time.

Utilizing the wage rate or some fraction of the wage rate, as the cost of leisure time has been a standard practice for most studies (Azevedo, 2007 and Azevedo, 2011) Estimating the cost of time as a proportion of the hourly wage assumes that individuals have a flexible working schedule so they can substitute work time for leisure time at the margin. That is, the labour market is assumed to be in equilibrium. Under such conditions, in theory, an individual increases the number of hours worked until the wage at the margin is equal to the value of an hour in leisure. In this case, the product of the hourly wage (adjusted for any other benefits of work) and travel time would represent a fair estimate of time cost. However, most people are constrained by fixed work-holiday schedules and may have no opportunity to substitute paid work for leisure. For these people, the leisure/work trade-off does not apply, since they cannot exchange work time for leisure. In many instances, those who accumulate holiday time or fail to take their holidays as scheduled often face the choice to take the time off at some point or lose that time with no additional compensation. The trade-off in this case is zero. The trade-off is also applied to the self-employed and others who have discretion over their work schedules.

Another approach is to ask the individuals implausible for retirees, homemakers, students, and the unemployed. The trade-off may still directly about their opportunity cost of time. Some articles found that estimating trip demand models using stated values of the opportunity cost of time (rather than the traditional measures based on a fraction of the wage rate) improves the goodness of fit of the regressions, and of course affects the estimates of welfare measures. This direct approach is affected by the fact that respondents might find it an easy task to estimate the relevant opportunity cost of their time, even if the researcher restricts the questions to an opportunity cost of time based on time uses related to the labour market.

An alternative method that is expected to incorporate the time of individual that is not in the labour force is the hedonic wage estimation where observed wage are regressed on observed socio economic characteristics (Shaw and Feather, 1998; Hynes, 2004; Azevedo, 2011)

Despite the difficulties and the alternatives described above, the most commonly used approach to value time in travel cost models of trip demand is still wage-based (Parsons 2003). Even though it is the most common practice in the treatment of the opportunity cost of time, the choice of appropriate fraction of the wage rate is the subject of much debate. The conventional travel cost models assume labour market equilibrium so that the opportunity cost of time used in travel is given by the wage rate (Becker 1965). McConnell and Strand (1981) and Ward (1983) also estimated the opportunity cost of time to be full wage rate.

The majority of past authors have chosen to model the opportunity cost of travel time as some fixed fraction of the full wage rate. Cesario (1976), in a survey of empirical evidence concerning urban commuters, concluded that the opportunity cost of travel time was between one-fourth and one-half of the wage rates. Based on this evidence he concluded that it would be reasonable to value travel time at one-third of the wage rate. For people in full time employment, most studies calculate an hourly wage using annual income. Reported annual income is then divided by the number of hours worked in a year and a fraction between 43 and 0 percent is used. Where, zero percent mean the opportunity cost of time is irrelevant in the case of for example, when individuals were assumed to travel during holidays when there is no loss of income. Perhaps even more common is to use some fraction of the imputed wage to value time, a common convention is to use 1/3 of the wage as the value of time (Hellerstein, 1993; Englin and Cameron, 1996; Bin et al., 2005 Azevedo, 2007; Cesario, 1976).

Taking in to account for some of the issues previously discussed, this study uses the mixed opportunity cost model as used by Dorison in 2008. The wage rate multiplier of zero is used for those who reported their employment status as unemployed, retired, or student. And the wage rate multiplier of 1/3 is used for those individuals, who reported full-time/part-time employment status.

3.5.3. Treatment of multiple site visitors

A standard assumption for interpreting travel cost as a valid proxy for the price of a particular trip is that the travel cost be incurred exclusively to visit the site in question, and nothing else. Such a single destination trip involves the individual going directly to the site, and then returning directly

to his or her home. Therefore all out-of-pocket cost and travel time are used to visit the site in question. In contrast, a multi destination trip is such that an individual has another destination on the way to the study site, nearby the site or on the way back. In this case we cannot interpret the entire trip cost as the price paid for visiting anyone particular site. If these multi-destination observations are treated in the same way as single destination trips, the TCM will overestimate the benefits of a trip to the particular study site. Related to the multi-destination problem is the multi-purpose trip problem. Here, some proportion of his or her total trip travel cost and travel time are incurred for other trip purposes that may not be related to the particular site that we are trying to model. If we are interested in estimating the economic value of a particular activity, we may have a misspecification problem as we observe only the overall multi-purpose trip demand function, not the specific activity trip demand function. That is, we observe the total trip price, but know little about the price for the individual site or activity we wish to value. Ignoring the distinction of different trip purposes or different destinations is likely to result in a bias estimate of the site price coefficient and hence yield a difference in consumer surplus (Fleming and Cook, 2007; Loomis, 2000).

There are methods to overcome this problem. One way of dealing with this problem is simply to identify from survey questions or statistical analyses such individuals and drop them from the sample. However, this could lead to under estimate of consumer surplus. To partially overcome this problem, the single destination visitor's consumer surplus per trip might then be applied as an approximation of the benefits received by these multi-destination visitors (Loomis, 2000; Roussel and et al, 2012). However, this problem could also lead to overestimate of consumer surplus

Studies had also indicate another possible way i.e. to use variable, such as 'nights spent' at each site, as a proxy for their relative importance ; dividing up total trip cost by length of stay at each destination. However, this problem is encountered with the problem of resulting in low travel cost values associated with long distance travellers, which undermines the logic of the TCM.
The other way is retain the multi-destination individuals using different procedures to deal with the joint cost. Although, allocating travel costs among multiple sites (and/or splitting it according to multiple purposes) has been proposed with several alternatives, there is no empirically defensible way to accomplish the task (Espineira and Tuffour, 2008)

Apart from the travel cost variable, it is necessary to include socio-economic and demographic variables. Those factors that are expected to have effects on number of visits include visitors

income levels, travel cost, educational levels, age, family size, gender, marital status, visitor's acquaintance, visitation in group or alone and existence of substitute sites, where some of them are dummy variable in the estimation process (Dorison, 2008, and Blayac et al, 2011)

3.5.4. Model specification, Variable definitions and Expected sign

Within the framework of the individual Travel Cost Method, the single-site demand function for the i^{th} visitor is

$$Vi = f(TCi, EDLi, AGEi, INCi, VFSi, GEi, MSi, VYE, VGS, CASi)$$

Where V_i represent the number of times the respondent visited Fasileades Royal Enclosure during the previous 12 month of the survey period, TCi is total travel cost, EDL is educational status in years of schooling, AGE is ages of the visitor, $INCi$ represent visitors monthly income , VHMi represent number of visitor's household member, GEi represent gender, MSi is marital status of the visitors, $VYEi$ visitors acquaintance in years of experience to the site, VGSi represent visitors group status and CASi represent visitors cost of visiting the best alternative site

In estimation process the type and nature of the data is the main factor in the choice of model since appropriate model should be selected that fit the data better. A major issue in TCM demand models is the non-negative integer feature of the trip data. The trip data specified as a dependent variable in the TCM demand function is measured in terms of the number of trips for a season or a year. In other word, the dependent variable of the TCM demand model is the outcome of a data-generating process based on some unknown probability distribution function defined as non-negative integers, often known as a count data process (Phaneuf and Smith, 2004; Cameron and Trivedi, 2005; Greene 2000 and Haab&Maconnell, 2002)

Many literature shows count data model as intuitively appealing for visitors trip demand because they deal with non – negative integer valued demand variable.

An additional feature of the distribution of the dependent variable is that it is truncated at zero, since the data collection was done on-site. Failing to account for truncation leads to estimates that are biased and inconsistent because the conditional mean is miss specified (Espineira et al, 2008; Haab and McConnell, 2002). This truncated nature of count data calls for a separate modelling technique that results in an estimator based on truncated count data distribution.

In view of the issues discussed i.e. due to the integer nature of the trip data, truncation of the data at zero visits, and some over-dispersion problems, the standard OLS estimator may not be the

appropriate choice. This leads us to use the models that may capture most of these issues and result in an unbiased and consistent estimator. In such a context, Poisson and negative binomial count data models have been used in numerous studies and literature.

Generally, the basic count model can be written as:-

$$Pr\ (vi\ = m)\ =\ f\ (m, zi, \beta)\ where$$

A simple count data model that satisfies the discrete probability distribution and non-negative integers is the standard Poisson distribution represented by,

$$\Pr\ (\mathrm{VI} = \mathrm{m})\ = \frac{\exp(-\lambda_i)\lambda_i^{\mathrm{m}}}{\mathrm{m!}}\ \text{where m} = 0, 1, 2, 3\ldots.$$

This is a discrete density function, where *m* is an element of the set of non-negative integers. The parameter λ_i is both the mean and variance of the random variable V_i, and takes strictly positive values.

The dependent variable vector V is distributed independent Possion (λ_i) and λ_i varies by observation as a function of the matrix of the explanatory variable **z** and the parameter vector β.

$$\lambda i\ =\ \exp(Zi\beta)\ \text{where,}\ \mathrm{E}\ (\mathrm{v/z})\ =\ \mathrm{var}\ (\mathrm{v/z})\ =\ \lambda i\ =\ \exp(Zi\beta)$$

Since it is necessary for $\lambda_i > 0$, it is common to specify it as an exponential function.

$$VISITPYi\ =\ \beta 0\ +\ \beta 1TC\ +\ \beta 2\,INC\ +\ \beta 3\,EDL\ +\ \beta 4\,AGE\ +\ \beta 5VFS\ +\ \beta 6\,GE\ +\ \beta 7MS\ +\ \beta 8\,VYE\ +\ \beta 9\,VGS\ +\ \beta 10CAS$$

These equations represent the linear form of the single site individual travel cost model. In the standard Poisson models the natural log of the dependent variable is taken, so the equation for visitors or residents becomes:

$$In\ (\lambda i)\ =\ lnVISITPYi\ =\ \beta 0\ +\ \beta 1TTC\ +\ \beta 2\,INC\ +\ \beta 3\,EDL\ +\ \beta 4\,AGE\ +\ \beta 5VFS\ +\ \beta 6VGE\ +\ \beta 7VMS\ +\ \beta 8VYE\ +\ \beta 9\,VGS\ +\ \beta 10COAS$$

TTC is visitor's travel cost. The travel cost includes all costs incurred during the travel and time cost (cost of travel and time cost) to the royal enclosure including a return. It includes effective individual travel Cost (TC), the Opportunity Cost of Time (OCT), as well as other costs such as accommodation costs, food and drinking, entrance fee, guide cost and others. Travel cost is expected, in this study, to be the main determinant of the number of visits on the royal enclosure (Smith, 2004, Loomis, 2001, Taylor and Douglas, 1998, Rebelo and Fonseca, 2010) When the

travel cost increases the number of times to visit the site will decreases which mean travel cost have a negative effect on the number of visits to the royal enclosure.

EDL is educational status in years of schooling. Generally education tends to be positively correlated with visits to cultural/historic heritage sites (Rebelo and Fonseca, 2010). More years of education would generally be expected to lead to a better understanding of the importance and benefits of visitation of heritage site. Accordingly visitors' educational level is expected to have a positive relationship with the number of visits. It is a dummy variable with 1 for beyond 12 years of schooling

AGE is age of the visitor's. Intuitively, age would be an important determinant of demand for visiting historic heritage sites. This study expects a significant relationship between age and the number of trips to cultural heritage site. Young people are more likely to visit heritage sites than older ones. When age increases they are more likely to be engaged in social activities and they are less likely to make visits to cultural heritage sites. Hence, age is expected to be negatively related to the number of visits to a site.

INC represents visitor's monthly income. It is expected to be the major determinant for visitors demand toward heritage. Therefore, income is expected to have significant and positive effect on visitor's demand to cultural heritage site.

VFS represent number of visitor's household member or family size. Visitor's family size is measured by the number of person's household member. As the number of people in a visitor's family increases it has a spill over effect on visitor's income, i.e., visitors out of pocket money that could be allotted for trip purpose relatively decreases as family size rises which in turn negatively affects the number of visits that a visitor could take. Therefore, visitor's family size is expected to have a negative relationship with the number of visits.

VGE represents gender, a dummy variable with 1 for male & 0 other wise. The effect of gender on tourist's demand for the royal enclosure is difficult to expect priory. Therefore no priory setting is made on whether it affect significantly or not.

VMS is marital status of the visitors, a dummy variable with 1 for married & 0 otherwise. Visitor's marital status is expected to influence the number of visits. As people get married, they are more likely to be engaged in economic and social activities that increase the value of time, and they are

less likely to make Visits to heritage sites. Here, the relationship between visitor's marital status and number of visits is also indeterminate a priori.

VYE represent visitor's acquaintance in years of experience to the site. The extent to which visitors can have a preference for the site is directly related to the degree of their experience for the site. Hence, visitor's knowledge of the site is expected to have a positive relationship with the number of visits.

VGS represent visitor's group status. Its effect on the demand for the royal enclosure is not determined priori. However, it is taken as dummy variable with 1 for visiting in group & 0 otherwise.

COAS indicate visitor's cost of visiting their best alternative site. Finally, it is important to tackle the issue of substitute sites. Ideally, if substitute sites exist, the price per trip to a substitute site should be included in the model. Failure to do so results in a biased estimate of the coefficient on price per trip, the severity of the bias depending on the correlation between the two price variables. In practice, we do not have information about which sites, if any, would be considered reasonable substitute for the study sites. Here, visitors were asked to state their best alternative historic heritage site that they would like to visit instead of the study site. Therefore, in this study, COAS is expected as a positive significant determinant variable.

3.5.5. Problems in the standard Poisson model

The Poisson model is subject to the potential misspecification of assuming that the conditional mean and variance are equal. Under trip data the variance is often greater than mean because a few visitors make a large number of trips while most visitors make only a few implying over dispersion in the data (Cameron and Trevedi, 2005, Green, 2002). One consequence of over desperation is that the standard error estimated in the Poisson model are underestimated, leading too frequently to the rejection of null hypothesis of no association. In other word the conditional mean is still consistent while estimated using the Poisson model, but the standard errors of β are biased downward.

A more generalized model to account for this over-dispersed count is based on the negative binomial probability distribution expressed as,

$$\Pr(Vi = k) = \frac{\Gamma\left(k+\frac{1}{\alpha}\right)}{\Gamma(k+1)\Gamma\left(\frac{1}{\alpha}\right)} (1/\alpha)/(1/\alpha + \lambda i)^{1/\alpha} (\lambda i/(1/\alpha + \lambda i))^{k}$$

Where, Γ is gamma distribution widely used for the term heterogeneity

α, indicate over dispersion parameter. The variance of the dependant variable is

$\lambda_i(1+\alpha\lambda_i)$.

If $\alpha = 0$ no over dispersion exists & the negative binomial distribution collapses to the Poisson distribution.

Another issue is that travel cost demand models are based on visitor's on site data, which means the non-visitors' demand and their value of the resource is not accounted for in the valuation results. This problem is referred to as truncation of the data at zero trip level, or only positive trips are considered in atypical travel cost demand estimation.

The truncated probability for the Poisson distribution is represented by the conditional Poisson density function.

The zero level Truncated Poisson likelihood function may be expressed as follows

$$\Pr(Vi = m/V_i > 0) = \frac{\exp(-\lambda_i)\lambda_i^{m}}{m!}\left[\frac{1}{1-\exp(-\lambda i)}\right]$$

In the presence of over dispersion, a truncated Poisson model will be biased and inconsistent (Grogger and Carson, 2001). Therefore, we use a model for truncated counts based on the negative binomial distribution. The conditional negative binomial probability model can be written as

$$\Pr Vi = n/Vi > 0) = \frac{\Gamma(n+1/\alpha)}{\Gamma(n+1)\Gamma(1/\alpha)}(\alpha\lambda i)^{n}(1+\alpha\lambda i)^{-(n+1/\alpha)}\left[\frac{1}{1-(1+\alpha\lambda i)^{-1/\alpha}}\right]$$

Therefore, in this study, since the data is collected only from on site visitors or from individuals who were visiting the royal enclosure during the survey period, the truncation form of the above count data models were used.

Endogenous stratification is the other characteristic that is considered in the formulation of the model for on-site survey studies Most of the time, the data obtained on-site are endogenously stratified. This is because a visitor's likelihood of being sampled is positively related to the number of trips they made to the site. That is, frequent visitors are more likely to be sampled (Andualem, 2011). This problem (sometimes referred to as choice-based sampling) was first addressed by Shaw (1988). This problem was not found to be a problem for the data used in this study since the data was collected at the gate of the site.

3.5.6. Estimation of demand and Welfare calculation

This is the final task of the study. Basically there are two steps to arrive at the final welfare of the visitor. The first step is estimating the demand relationship. This is done by relating the number of

visit with the travel cost. Many research works suggest the semi-log equation as a better fitter for the data than the linear and log-log model (Poor and Smith, 2004, and Andualem, 2011)

The semi log travel cost model hypothesis is:

$$ln\,(v_i) = \beta_0 - \beta_1 travel\ cost_i + E_i$$

Where

v_i = individual i's annual visits to Fasileades Royal Enclosure site

Travel costi =Travel cost for individual i measured in ETB

β0 = the constant term

β1 = coefficient of the travel cost

E_i= residual which has a normal distribution with mean zero and variance δ2

The second step in the estimation of the welfare of an individual for a trip is finding the area under the estimated demand function which gives the value of benefit flowing to each individual. The area of this demand function is estimated by integrating the inverse demand function between zero and the average number of visit. The result from this estimation gives the value of visit for average number of visits. Then, this value will be use in the computation of aggregate benefit or annual use value of the study site. The last task in the measurement of welfare is finding consumer surplus. Consumer surplus is a widely accepted a measure of net social benefit. It represents the difference between an individual's willingness to pay and actual expenditure for a good and service. With count data models, the procedure most often used is to calculate per trip consumer surplus (Creel and Loomis 1990). The estimated demand equation can also be exploited to derive Marshallian Consumer Surplus (CS) for access to visit the site, by integrating the area under the demand curve and above average travel cost. Per trip consumer surplus measure can be multiplied by the estimated number of trips in a year to obtain the aggregate consumer surplus of access to a given site or sites, in general or for a specific activity. The aggregate consumer surplus is obtained by multiplying the per trip consumer surplus of the visitors for the total number of around 94156 domestic tourists visits for the last 12 months from the survey period. (Creel and Loomis 1990, Poor and Smith 2004, and Andualem 2011)

CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSION

In this section, the survey results were presented and analyzed. Descriptive statistics on the socio economic characteristics of the sample visitors and their opinion on the standard of the study site, travel and travel cost of the respondents are discussed in detail. The other objectives of the study; estimation of the travel cost model and finding of the aggregate benefit are discussed in this section too.

4.1. Descriptive statistics

4.1.1. Socio economic characteristics of the respondent

The data was collected based on onsite survey from a total of 155 local visitors of the site where 19 questioners are incomplete. Thus, a total of 136 completed questioners are used for the study. From the survey, it was found that most of the respondents, 56.61% of the total sample visitors are employee from governmental and other business organization where as 32.95% of the sample visitors are self employed in their own business. The remaining 10.44% respondents are students with 2 unemployed individuals.

Table.4.1. Distribution of the respondents' demographic characteristics

Demographic characteristics		Number of visitors	Percent
Sex	Male	79	58
	Female	57	48
Marital status	Married	65	47.7
	Unmarried	71	42.3
Educational level	Below 12	24	17.5
	Above 12	112	82.5
Preferred day	Weekdays	21	15.5
for visiting	Weekends	63	46.3
	Public holydays	52	38.2

Source: Onsite survey result, 2014

From the above table, we can see the existence of small gap between male and female visitors. It is 58% & 42% for male and female visitors respectively. It is as indication for the presence of an alteration or improvement on the attitude of the society to ward gender since the participation of female is relatively more. The survey have also indicates that 47.7% of the respondent are married. Alternatively, around 65% of the male respondents and 20 % of the female respondents are married.

The other visitor's characteristics which is the educational status of the sample visitors, indicates that more proportion of the sample visitors have completed a college or university education. 82.5% of the respondents have above 12 years of education. It is only 17.5% of the respondent that have below 12 years of education. Therefore, it is possible to see that more level of education have a positive effect on the society's attitude toward the benefit of visiting & conserving cultural/historic heritage sites.

The respondents were asked about their preferred day of visit and 38.2% of the respondents preferred to visit Fasileades royal enclosure during public holydays and 46.3% and 15.5% of the respondents preferred to visit during weekends and working days, respectively. This shows that many of the sample visitors 84.5% prefer to visit the site during their free time than working time. This finding supports our previous conclusion in the methodology section on the opportunity cost of time as one third of the wage rate. Since many visitors have preferred to visit the site during their free time, the study take one third of the wage rate, as an opportunity cost of time.

Table.4.2. Distribution of age of sample visitors

Age group	Frequency	Relative frequency	Cumulative frequency
19-30	73	53.68	3.68
31-40	43	31.62	85.3
41-50	12	8.82	94.12
51-60	8	5.88	100
Total	136	100	

Source: On site survey result, 2014

As it is shown on table 4.2, 85.3% of the respondents were less than 41 years old and it is only 14.7 % of the respondents that are above 40 years old. Similarly, if we see the relative frequency of the sample visitors, starting from the first age group number of visitors in a group is decreasing. It is

very similar in temperament with our expectation that relatively lower age individual's are very interesting and more motivated to visit cultural heritage sites than older people. Furthermore, the mean age of the respondents was 30.06 years (Syahdin, 2009)

Table 4.3. Family size of the respondent's

Family size	Frequency	Relative frequency	Commutative frequency
1	13	9.56	9.6
2	21	15.44	25
3	30	22.06	47.06
4	23	16.91	63.97
5	14	10.3	74.27
6	17	12.5	86.77
7	10	7.35	94.12
8	8	5.88	100
Total	136	100	

Source: Onsite survey result, 2014

As we can see from table 4.3, 63.97% of the sample visitors have a family size of less than 5 members. It is only 36.03 % of the sample visitors that have beyond 4 household members. In addition, if we see the table, beyond 4 number of family member the relative frequency of each family size tends to diminish. This result leads us to the idea that, individuals with small number of family size will visit cultural/historic heritage site more than those with high family member, which is very compatible with our expectation.

Table 4.4: Household monthly income (Birr)

Range of monthly income	Frequency	Relative frequency	Cumulative frequency	
Less than 1500	40	29.4	29.4	
1501-3000	49	36.02	65.42	
3001-4500	21	15.44	80.86	chi square value=11.1
4501-6000	12	8.82	89.68	p >0.025
6001-7500	6	4.44	94.12	
>7500	8	5.88	100	
Total	136	100		

Source: Onsite survey result, 2014

Individuals are asked to state income earned from all source; from employment, business, and other sources including house rent, bank interest, and pocket money from parents, relatives, and friends.

As we see from table 4.5, around three quarters of the sample visitors (70.6%) of the respondent did earn an income of greater than 1500. Only 29.4% of the respondents are in the low income group, earning less than 1500 birr per month. Thus, relatively most of the sample visitors are individuals earning a higher income. This indicates that income is an important factor for visitor's decision to visit cultural/historic heritage sites. However, for checking the statistical significance among groups a chi square test is conducted. Chi-square test tests the null hypothesis that the variables are independent. The test compares the observed data according to our expectation. It tests only the probability of independence of a distribution of data. Therefore, from the above table it is possible see that the result or differences among group is statistically significant for probability beyond 2.25%. In addition, the average income of the sample visitors is 2990.9

4.1.2. Respondent's, travel cost, time and visit characteristics

Table 4.5: Cross tabulation of visitors group status and number of visits

Number of trips per year	Visitors group status		Total
	Alone (%)	In group (%)	
Small number of trips(1-4)	37.1	41.1	78.2
Medium number of trips(5-8)	6.5	7.3	13.8
High number of trips(9-12)	3.4	4.6	8
Total	47	52	100

Source: Onsite survey result

As it is shown on table 4.5, high proportion (above three quarter) of the sample visitors take small number of trips to the site, 78.2 % of the respondent take only 1-4 number of trips. It is only 8% of the sample visitors visited the site beyond 9 times.

In addition, it is possible to see that in all categories of trips group visitors consists a higher proportion of visiting the site than individual visitors. For example; on the first category, group

visitors made 41.1% of the trips but lonely visitors made only 37.1%. Similarly, on the remaining high and medium category of trips group visitors made high proportion of the trips (11.9) while lonely visitors made only 9.9 % of the visits. In general, 52.4% of the visitors visit the site with their families, relatives, friends and colleagues and 47.6% were lonely visitors. This indicates that travelling to cultural/historic heritage areas with a group will encourage more visitors than visiting alone. Moreover, the average number of annual visits to the site was estimated at 2.67 visits.

Table 4.6: Cross tabulation of visitors years of acquaintance and number of visits

Number of trips per year	Years of acquaintance (%)			Total
	Small (1-3)	Medium(4-6)	High (>7)	
Small number of trips (1-4)	55	16.1	6.5	78.2
Medium number of trips (5-8)	4.1	4.1	5.6	13.8
High number of trips (9-12)	0.8	1.6	5.6	8
Total	60.5	21.8	17.8	100

Source: Onsite survey result, 2014

As it is indicated on the above table, almost 60.5% of the sample visitors have small years of acquaintance and 17.7% have high years of acquaintance. From the total of sample visitors with small years of acquaintance (60.5%) 55.6 % made small number of trips. Only 0.8 % of this category made high number of trips. Similarly, from the total of respondent with high years of acquaintance 5.6% made high number of trips and 6.5 % made small number of visits to the site. Relatively very high number of visitors with small years of acquaintance made a small number of trips as compared with visitors who have high years of acquaintance. This is very similar with our expectation that visitors with high number of acquaintance will have a tendency to make more number of trips to the site than visitors with small years of acquaintance.

Respondents are asked whether or not they had planned to visit Fasileades royal enclosure site and the number of times they had planned to visit in the last 12 months. From the total of sample visitors 94.4% had a plan and the remaining 5.6% have no any prior plan on the number of trip they would like to take to Fasileades Royal enclosure site before they come to the site. The survey result also shows that from the total of respondents who are made a plan, 53.85% had not actually visited the site as they had planned to visit in the previous 12 months. When they mention their reason,

36.5% mention leisure time constraint, 20.63 % point out income constraint, 19% mentioned distance of the site, 12.7% indicates due to preference of other site, and 11.1% mentioned because they have visited the site many times and due to unattractive service on the site. Leisure time and income constraints are the leading factors among the reasons for visitors visiting lower than they had planned to visit.

Regarding their future plan, 67.8% of the respondents answered that for the coming twelve months, they had planned to take one more visit from their previous visits. 18.5% of the respondents planned to maintain their previous number of trips and the remaining 13.7% of the respondents do not exactly know how much more trips they will take to the Fasileades royal enclosure site. This indicates a good opportunity for the site since many of the sample visitors are willing to take one more trips to the site in the next twelve months.

Table 4.7: Visitor's travel cost per person per round trip

Per round trip cost	Frequency	Relative frequency	Cumulative frequency
<1000	86	63.23	63.23
1001-2000	34	25	88.23
2001-3000	12	8.83	97.06
>3000	4	2.94	100
Total	136	100	

Source: On site survey result, 2014

Travel cost of the respondent's includes transportation cost (fuel cost), time cost, food and drink, accommodations, guide service, entrance fee and other costs related to the trip. This is collected by asking the sample visitor's how much money (birr) do they have spent on their trip to the Fasileades royal enclosure site for all the above cost components except the opportunity cost of time as it is discussed in the methodology part of the study.

As we can see from table 4.7, 63.23 % of the sample visitors spend less than one thousand birr per round trip while 25 % spend between two and three thousand birr. Only 11.77% of the respondents have a cost of greater than two thousand birr per round trip. From this it is possible to see that most of the sample visitors are individuals relatively with low trip cost. This indicates price (travel cost) is an important variable in determining the decision to visit cultural/historic heritage sites. Moreover, the average round trip travel cost of the sample visitors is 698.42 birr

Table 4.8: Total time out of home			
Total time out of home	Frequency	Relative frequency	Cumulative frequency
<16	80	58.82	58.82
17-33	34	25	83.82
34-50	9	6.6.621	91.1
>50	13	9.56	100
Total	136	100	

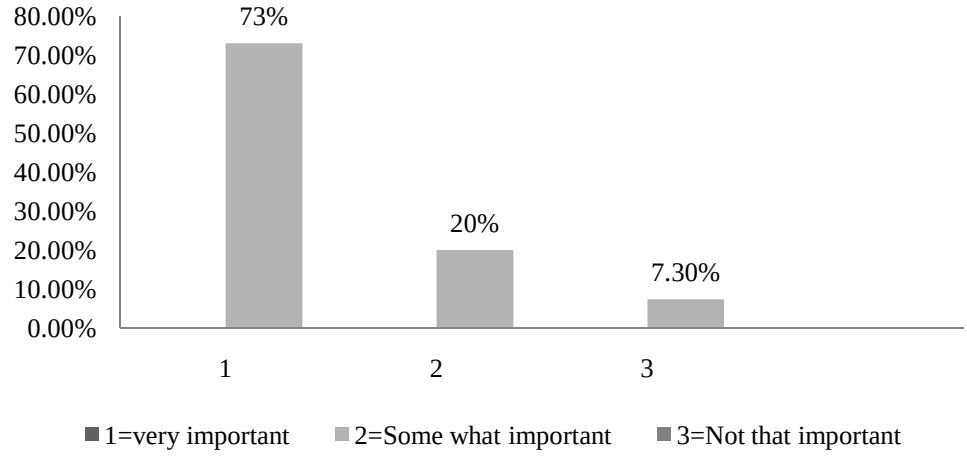
Source: Onsite survey result

As we can see from table 4.8, the majority of sample visitors (58.82%) reports spending a few hours(less than 16 hours during their visit to the study site) and from the total of this respondents beyond three quarters spent less than 12 hours which is mostly treated as single site (pure) trippers in many literatures as it is discussed in the methodology section. The average on site time represents 29.6 % of the total out of home time spent to visit the site and the average onsite time is 5.6 hours for the royal enclosure including the bath.

4.1.3. Visitor's opinions on the site experience

In order to answer the second research questions of the paper, ''how important is visiting cultural/historic heritage sites like Fasileades World Heritage Royal Enclosure and reasons for its important?'', it was essential to get the background information and knowledge of cultural heritage sites in addition to their frequency of visit. Hence, first the question about how important is visiting cultural heritage sites is needed to be asked.

Figure 4.1. The importance of visiting historic heritage site

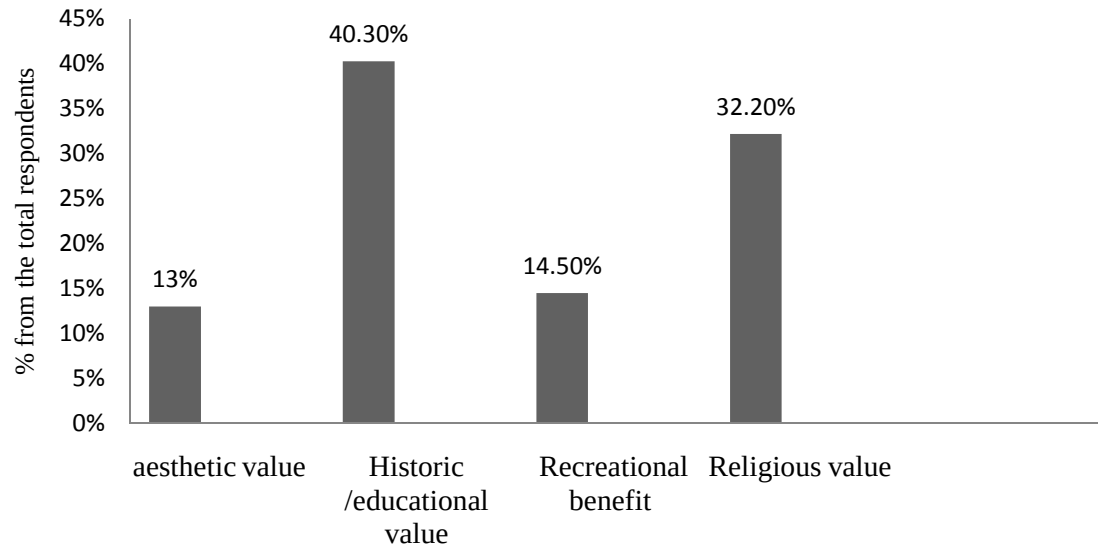


Source: onsite survey result,2014

The importance of a visitation of cultural heritage site has been rated on a scale from 1 to 4 with an average of 2.09. Most respondent, namely 72.58%, evaluated visitation as very important. The remaining 20% and 7.25 % of the respondents choose somewhat important and not that important respectively. As we can see from the above figure and finding, most of the respondent (approximately three quarter of the respondent) assigned a higher value to the importance of cultural heritage sites. No respondent who choose the alternative not important at all. Therefore, cultural/historic sites have a clear significance for the target group since most respondents consider it to be of a high importance. However, the perception of respondents changes dramatically from very important to not important at all (with a standard deviation of 0.59). This indicates that, the importance of visiting cultural heritage sites depends on individual's perception and is subjective.

The next step after having examined the general importance of cultural/historic heritage sites for the respondents, was asking them to describe their most important motives behind visiting this and other similar cultural/historic heritage sites. Individuals were asked to indicate their most important motives from the following or other benefits of the site; educational and historic value of the site, recreational benefit of the site, aesthetic value of the site, religious value of the site or other motive if they have. The result of the finding is presented simply in the following figure.

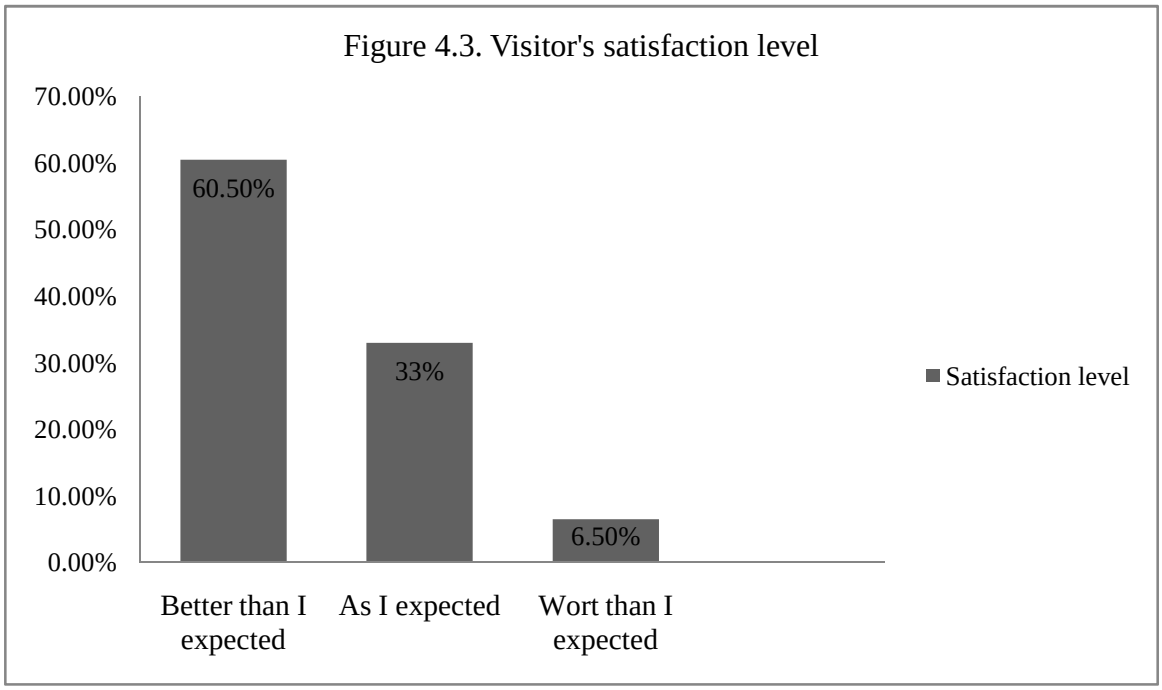
Figure.4.2. Respondents opinion on the value of the site



Source: onsite survey result, 2014

Historical values are at the root of the very notion of heritage (Randall, 2000). The capacity of a site to convey, embody or stimulate a relation or reaction to the past is part of the fundamental nature and meaning of heritage objects. Historical value can accrue in several ways: from the heritage material's age, from its association with people or events, from its rarity and/or uniqueness, from its technological qualities, or from its archival/documentary potential. As we can see from the above figure and the finding, 40.30% of the respondents indicate that their primary motives for visiting Fasileades royal enclosure site is its historical significance. Next to the historical significance of the site, 32.2% of the respondent associated their primary reason with religious meaning. The remaining 13% & 14.5% of the respondent indicate aesthetic quality (visual quality of the site) and recreational value of the site respectively. Therefore, as it is shown in the above result, Fasileades royal enclosure site provide multi functional values to the visitors of the site. Here individuals are asked to show only their primary motives behind visiting this site. But, if they are asked to show all benefits they have got from the site, they may indicate different type of values they have enjoyed from the site.

For better management of a tourism destination, the knowledge of the reactions, both positive and negative, of the visitors to the area is very important. Therefore, this survey sought detail on visitor's satisfaction issues. The overall satisfaction rating for respondents is shown in Figure 4.3.

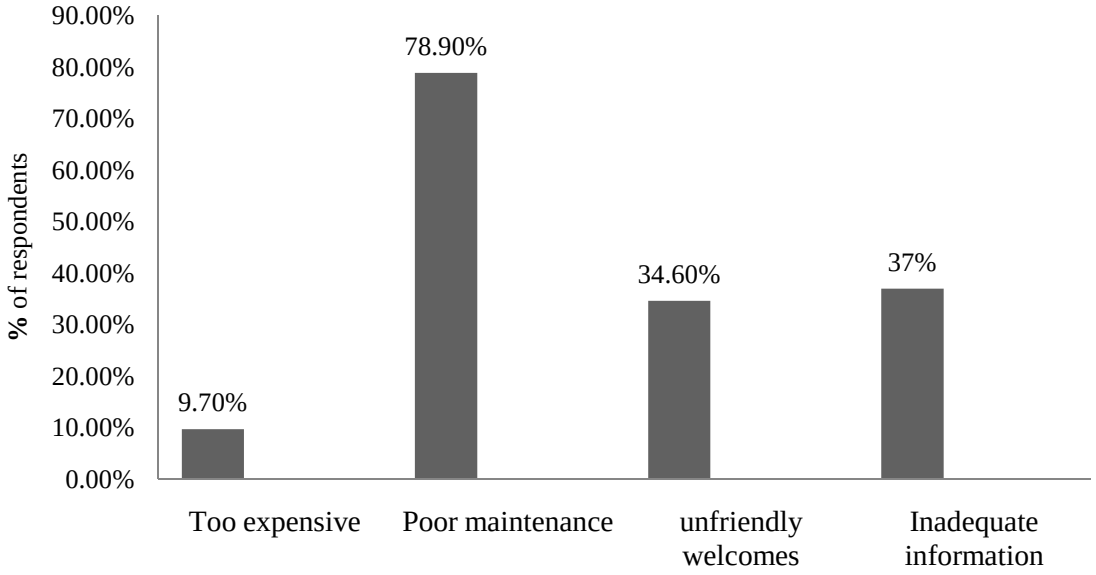


Source: onsite survey result, 2014

Clearly, with 60 per cent of respondents being very satisfied with their visit (they have enjoyed the site better than they have expected), 33% as they have expected and only 6.50% dissatisfied (worth than they have expected). Therefore, the site enjoys a moderately positive position as far as visitor's expectation is concerned.

In addition, visitors were asked to indicate any source of disappointment on their visit to the Fasileades Royal Enclosure site. Respondents asked to choose any of the following alternatives; too expensive, not good enough maintenance of the royal buildings, inadequate information, unfriendly welcomes and too crowded. Hence, the result is revealed simply in the following figure.

Figure 4.4. Unsatisfactory attributes for the respondents



Source: onsite survey result, 2014

As it is shown on figure 12, almost three quarters of the respondents commented the presence of not good enough maintenance for the royal buildings where as 37% and 34.60% indicate inadequate information and unfriendly welcomes respectively. Only 9.70% mentioned expensiveness of visiting the site and crowdedness is not a problem for all respondents. The sample visitors were also asked an open-ended question if they have any other comment that must be improved on the site.

Respondents commented on the quality of the guide service; they have commented that both the knowledge and ethics of the guiding individuals must be improved. There must be well trained and qualified guiding service. In addition to this, some respondents have also indicated if the guiding fee to be fair for all visitors. Some respondents mentioned that 150 birr for all domestic visitors is not fair; it must consider students and other low income groups. Some respondents have also commented the absence of adequate secondary information concerning the historical development and other information of the royal enclosure. 8% of the respondents mentioned that the doors of some royal buildings (castles) are closed. Therefore, they must be maintained and become open for visitors. Some individuals commented that free areas (lands) of the site lack greenness. To make the site more recreational, the free lands must be used for green plants.

Another major complain concerned the absence of peaceful surrounding (especially during public holydays, bazaars and other activities around and within the site) that is uncomfortable not only for

the visitors but also harmful for the royal buildings. Finally, there were also a significant number of complaints about the toilets being dirty.

4.2. **Results of the regression analysis**

4.2.1. Test of the Multicollinearity

A pair-wise correlation matrix was used in this study to determine if multicollinearity was present in the model. A good "rule of thumb" when using a correlation matrix to determine if multi collinearity exists in a model is removing variables that have a Pearson correlation value of 0.7 or higher(Dorison,2008) The sign of the correlation coefficient determines whether the correlation is positive or negative. The magnitude of the correlation coefficient determines the strength of the correlation. Although there are no established rules for describing correlational strength, the following guidelines were used as a general framework.

Table 4.9: Interpretation of Pearson Correlation Coefficients

Value	Descriptive Terms
$0 < r < 0.3$	Weak Correlation
$0.3 < r < 0.7$	Moderate Correlation
$r > 0.7$	Strong Correlation

Note: r = Pearson correlation coefficient value

The result of a pair-wise correlation matrix was presented on appendix A.

4.2.2. Test of Heteroskadesticity

Heteroskedasticity occurs most often in cross-sectional data. In the presence of heteroskedasticity, even though the estimated parameters are unbiased in case of OLS, statistical inference based on t-statistics and F-statistics would be inappropriate and biased. Instead, we should use robust standard error to obtain efficient least square estimators and appropriate statistical test (Yamano, 2009). Therefore, under ordinary least square (OLS) it might be less problematic but heteroskedasticity can be very problematic with methods besides OLS. Therefore, in order to detect hetroscedsticity the Breusch-Pagan / Cook-Weisberg test is used. Breusch-Pagan / Cook-Weisberg test the null hypothesis that the error variances are all equal versus the alternative that the error variances are a multiplicative function of one or more variables. A large chi-square would indicate that heteroscedasticity was present. As it is presented on the appendix, the chi-square value was 1.96

which is small with Prob > chi2 = 0.1712, indicating heteroskedasticity was probably not a problem in this model.

4.2.3. The best fit model and interpretation

As it is explained earlier, the number of trips taken by a person to a site in a given season is a non-negative integer. Therefore, to increase estimation efficiency and avoid potential biases the Poisson or negative binomial distributions are a candidate distributional assumptions. In addition, since the data is collected through onsite survey, the truncated form of the above count data models was used. Truncated Poisson and Truncated Negative Binomial model were applied in this study. However, based on the regression result the truncated Poisson model was found the best fit model for the data.

The regression result using the truncated Poisson regression models was presented in the following table:

Table 4.9: Regression Estimates for the Travel Cost Model (Dependant variable: number of trips to Fasileades Royal Enclosure site before 12 months of the survey period (NOT))

		Truncated Poisson regression	
Variable	Expected sign	coefficient	Marginal effect
Intercept		0.136 (4.31)***	N/A
TTC	-	-0.0024 (-5.26)***	-0.007
COAS	+	0.0009 (1.09)	0.0002
INC	+	0.01 (2.02)*	0.003
EDU	+	0.870 (4.20)***	1.74
AGE	-	0.012 (-3.39)***	-0.032
VFS	-	0.078 (-2.26)**	-0.025
VGS	+	0.024 (1.99)***	0.064
VGE	-	0.092 (-0.51)	-0.097
VMS	-	0.198 (-1.35)	-0.527
VYE	+	0.143 (6.84)***	0.379
N		136	
LR chi2(10)		122.64	
Prob> chi2		0.0000	
Pseudo R^2		0.2563	

Note: *** denotes that the coefficient is statistically significant at the 1% level; ** denotes significance at 5%; and * denotes significance at 10%. Numbers in parentheses are t values.

Based on the regression result, over dispersion is not found in the data. The over dispersion parameter is almost equal to zero (α=0.0099871). In addition, the likelihood-ratio test of alpha=0 show that, Prob>=chibar2 = 0.431, which indicate the absence of over dispersion problem. Therefore, the truncated Poisson regression model was the appropriate model for this study. The chi-square statistic with ten degrees of freedom, followed by the p-value is a test that all of the estimated coefficients are equal to zero; a test of the model as a whole. From the p-value, we can see that the model is statistically significant. The pseudo R-squared value was low for both models, but due to the nature of the data, these values cannot be interpreted as one would interpret an OLS R^2 value. Count-data model R-squared values are not typically used for interpretation (Adrienne, 2012)

As it is shown on table 4.9, seven out of ten variables were significant on both models. Marital status, gender and cost of visiting the best alternative site become insignificant variables. Size of the marginal for each independent variable calculated at the mean of all the independent variables provides the size of the effect that variable has on the dependent variable, and the sign on the marginal (positive or negative) indicate the direction of the effect.

To interpret the marginal effect of trip cost, on average, an increase in travel cost by 1 birr reduces the expected number of trips by 0.007 units, ceteris paribus. Alternatively, from the magnitude of the coefficient -0.0024, an increase in travel cost by one unit leads to an estimated decrease of the estimated number of trip by 0.24%. The sign of the coefficient and marginal value for TTC indicates the negative relationship of trip demand and total trip cost as it is expected priori in this study (Smith and Poor (2004), Alberini et al (200)) The effect of income is also positive as expected; implying that, on average, an increase in income by 1 birr will increase the demand for visit to Fasileades royal enclosure by 0.003 units (Patunru and Syahdin (2009), Rebelo (2010), Roussel et al (2012))

The coefficient of education variable is positive and strongly significant. This suggests that more educated people (above 12 years of education) visit the site more frequently than less educated one (primary and secondary school). This indicates that education is an important factor in individual's

decision to visit heritage sites. Educated people are more likely to visit historical heritage sites (Rebelo et al (2010).

The years of acquaintance variable were positive and strongly significant. The expected coefficient for this variable was 0.142756, as the longer an individual have been involved in visiting the study site, the more likely they were to demand trips to that site. The estimated marginal effect indicates that for each additional year of experience to the study site, the demand for trips increased by 0.37971.

The coefficient of age was negative and significant at the 1% level of significance. This was the predicted outcome, because as individuals get older, they are expected to demand fewer trips to historic heritage sites. The marginal effect shows demand for trips decreased by 0.0324 on average, as visitor's age increased by one year. Group status of the sample visitor's was also the significant variable determining visitor's demand to visit the study site. As it can be seen from its marginal value (0.06421), visitor's with a group visit Fasileades Royal enclosure more number of times than alone visitor's. (Syahdin, 2009)

The final significant variable was respondent's family size. As it is expected priori, family size negatively affect the visitor's demand to visit the study site. This is because of the following reasons. When an individual is in a higher family size household member he devoted more income to support his family that might be used for visits and as a result the number of visit will decrease since the two goods are very competitive. In addition, most importantly when an individual supports his household members, he is also scarifying his leisure time. From the result, it has a marginal effect of -0.025 indicating, on average, an individual with one more number of family sizes have a tendency to visit 0.025 less trip, ceteris paribus (Andualem, 2011)

4.3. Estimation of demand function and consumer surplus

Many research works suggest the semi-log equation as a better fitter for count data than the linear and log-log model (Poor and Smith, 2004 and Andualem, 2011)

The semi log travel cost model hypothesis is:

$\ln(v_i) = \beta_0 - \beta_1 travel\ cost_i + E_i$

Where

v_i = individual i's annual visits to Fasileades Royal Enclosure

Total travel $cost_i$ =Travel cost for individual i measured in ETB

$\beta 0$ = the constant term

$\beta 1$ = coefficient of the travel cost

E_i= residual which has a normal distribution with mean zero and variance $\delta 2$

The estimated demand function for Fasileades Royal Enclosure site can be expressed as:

$$v = e^{1.607-0.00247TC}$$

The primary aim of travel cost method is finding the economic value (use value) of the study site and computation of welfare (consumer surplus). Finding the area below the demand curve provides the total visitors value (use value) of the study site. This is calculated by integrating the inverse demand function between zero and the average number of visit. This value will be further used to calculate the annual use value of the study site.

Integrating the above exponential function between zero and the average number of visit (2.67) was estimated at 1424.05 birr for the average number of visit. Visitor's average benefit per visit from visiting Fasileades Royal Enclosure site is then estimated at 533.35 birr. Individual average benefit per visit indicates the total value (benefit) that visitor's attached for each visit to the Fasileades Royal enclosure site.

Using the above result, aggregate benefits from the study site (use value of the study site) can be estimated. Multiplying visitor's average benefit per visit by the target number of visits (N) provides the use value of the study site, where the target number of visits is the total number of visits to the study site by the domestic residents during the last 12 months from the survey period. During the last twelve months from the survey period a total of 119,630 visits were taken to Fasileades Royal Enclosure site where 94,156 visits were from domestic visitors. Therefore, the domestic economic value of the Fasileades Royal Enclosure site was

533.35× 94156 = 50,218,102.6 Birr

The last task is the measurements of welfare (consumer surplus). Consumer surplus is an indicator for net benefits (welfare) visitors enjoy from visiting the site. Therefore, consumer surplus can be calculated using the estimated coefficients of the travel cost covariate from the above regression result. The average consumer surplus per visit estimates is calculated by the negative inverse of the travel cost coefficient (Dorison, 2008). So, the individual average per visit consumer surplus was estimated 404.85 birr. From this figure it is possible to generalize than the site authority can have

the possibility to increase the entrance fee up to 400 birr. Currently entrance fee for the domestic visitors is 10 birr, thus, more money can be collected if by increasing the entrance fee up to 400.

Then, aggregate consumer surplus was estimated as

$$404.85 \times 94156 = 38{,}119{,}056.6 \text{ Birr}$$

This figure is the value of the net benefit that visitors gained by visiting the site. It reflects the amount that visitors are willing to pay to enjoy this royal enclosure (the study site). This figure, however, does not include the value for foreign visitors and the non-use value of the Royal Enclosure.

CHAPTER FIVE
SUMMARY AND RECOMMENDATION

5.1. Summery

In an increasing globalised world, heritage tourism particularly historic/cultural heritage tourism becomes the most powerful forces for economic development. Specifically, the heritage tourism industry provides a number of economic returns in the form of foreign exchange earnings, employment generation, sources of individual income and government revenues. Even if heritages are the most powerful economic engines, there are failures and limitations in managing and conserving this asset with appropriate economic valuation techniques especially in developing countries like Ethiopia.

Most of cultural or historic assets are labelled as public goods, that is, they have non-rivalry and non-exclusion characteristics, and there are no markets able to express their value in terms of real prices. Hence, there is the need for methods of expression of the preferences of consumers and consequent measures of valuation. There are powerful arguments for using economic valuation to cultural heritage sector. First of all, cultural or historic institutions are increasingly being required to justify their expenditure decisions or requests for funding in terms of generated 'user benefits'. In addition, in a world where potential visitors are income constrained and getting more sophisticated, cultural or historic destinations have to renew themselves to compete and survive. Thus, a consumer-oriented approach to cultural heritage management and conservation is highly important, leading to on-going market research studies to understand demand, strong marketing to generate awareness and attract new visitors and a focus on encouraging repeat and new visits, both essential sources for long-term survival.

Therefore, the major objective of this study is to estimate the economic value of cultural or historic heritage sites using indirect valuation techniques in particular the travel cost method. The study attempted to provide a monetary estimate of the use value of Fasileades World Heritage Royal Enclosure using the travel cost method.

Due to the truncated nature of the data and absence of over dispersion problem, the truncated Poisson regression model was used for the estimation purpose. The result of this regression analysis shows that total travel cost, income, educational level, age , group status, visitors years of acquaintance and family size significantly determine visitors demand where as cost of visiting the

best alternative site, gender and marital status become insignificant variables. As it is expected the study indicates that visitor's travel cost significantly and negatively determines the demand to visit Fasileades Royal Enclosure.

The domestic use value of the Royal Enclosure was estimated at 50,218,102.6 Birr. In addition, welfare measure as indicated from the average consumer surplus per visit estimates was calculated by the negative inverse of the travel cost coefficient. So, the individual average per visit consumer surplus for domestic visitors was estimated at 404.85 birr. Then, the aggregate domestic visit consumer surplus was estimated to be 38,119,056.6 birr. This figure indicated that the site authority can generate more revenue through increasing entrance fee for domestic visit.

Knowledge of visitors toward the importance of visiting historic heritage sites with their views and opinion on the current trip experience was assessed. Approximately, three quarter of the respondent pointed a higher value to the importance of visiting cultural/historic heritage sites. However, the perception of respondent changes dramatically that indicates the subjective nature of individual's attitude toward the importance of historic heritage sites.

Efforts were also made to assess the different value of the Royal Enclosure to its visitors through asking visitor's primary motive to visit the Royal Enclosure. Most of the respondents (40.3%) associated historical/educational value of the site as their primary motive to visit this site. Historical/educational value was followed by religious value where 32.20% of the respondents indicate religious value as their primary motive. The remaining 13% & 14.5% of the respondent indicate aesthetic quality (visual quality of the site) and recreational value of the site respectively. Therefore, Fasileades Royal Enclosure provides multi functional values to its visitors.

In addition, visitors were also asked to indicate any source of disappointment in their trip experience to the Royal Enclosure. Hence, poor maintenances, inadequate information, unfriendly welcome and too expensiveness were been the leading source of disappointment for the sample visitors. Furthermore, visitors commented that both the knowledge and ethics of the guiding individuals must be improved. Some respondents have commented if the guiding fee to be fair by considering the nature of visitor like students and disabled individuals. Some respondents have also commented on the limited availability of secondary information, making the site more recreational through green plants, opening some closed royal buildings for visitors and finally they commented on the absence of peaceful surrounding on the site.

5.2. Recommendations

Policy and decision makers for heritage resource need to have strong idea about the economic values of this resource before they plan to launch any projects. Decision on the management, conservation and allocation of resources would be appropriate if it is based on an economic estimate obtained through accepted estimation techniques than valuing resources on the basis of peoples' traditional value judgment. Therefore, it would be very importance if decision makers base their future economic decisions on cultural/historic heritage based on using economic valuation techniques.

The study suggests that the site authorities should increase revenue from the site by raising entrance fee up to 400 birr and expand the facility of the site by extracting some of the large consumer surplus enjoyed by visitors. The site authority collects only 9% of this figure. Thus, the additional revenue could be used as an additional source of finance, earmarked for the maintenance of the site or resource conservation efforts for a remarkable change of the site.

In addition, from the result of the study visitors indicate a number of problems as their source of disappointment in their trip experience, and they have indicated if they could be improved. Therefore, the research suggested the application of further research using the Choice Experiment valuation technique for the analysis of user preferences for various alternatives and for the associated decision making process.

Although estimates of visitor benefits are informative, recall one major concern with TCMs is that they estimate visitor-use benefits only, and in the case of cultural heritage sites, non-use benefits (value to those who do not visit the site) may be substantial. Cultural or historic heritage sites generate benefits that people enjoy because they know that the site is being preserved. These benefit might be motivated by the desire that the site be available for others to visit (altruistic value), that the site be preserved for future generation (bequest value), that the current non visitors decide to become a visitors in the future (option value), or simply that the site be preserved, even none ever actually visit it (existence value). Therefore, in order to further investigate these non-use values associated with FWHRE, additional non-market valuation techniques must be employed, of which the contingent valuation method is the most logical choice. Thus, one area of further research regarding the value of the benefits to society provided by FWHRE would be to conduct a CVM study.

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APPENDIX

APPENDIX A

Appendix A.1: Correlation Matrix

	NOV	TCV	COBAL	EL	MI	VA	NOF	GS	AGE	MS	GEN
NOV	1.00										
TCV	-0.16	1.00									
COBAL	0.20	0.04	1.00								
EL	0.38	0.02	0.20	1.00							
MI	-0.03	0.61	0.23	0.15	1.00						
VA	0.62	-0.10	0.15	0.26	0.04	1.00					
NOF	-0.25	-0.09	-0.04	-0.16	-0.19	-0.16	1.00				
GS	0.01	-0.09	0.03	-0.09	-0.02	-0.05	0.10	1.00			
AGE	0.09	0.06	-0.09	0.10	0.06	0.08	-0.05	-0.31	1.00		
MS	-0.12	0.16	-0.07	0.08	0.17	-0.12	-0.10	-0.30	0.24	1.00	
GEN	0.01	0.07	0.09	-0.01	0.10	0.11	-0.08	-0.02	0.13	-0.08	1.00

Appendix A.2: Test of heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of not

chi2(1) = 1.96

Prob > chi2 = 0.1712

Appendix A.3: The regression result for Truncated Poisson and Negative binomial model using Stata 11

Variable	Truncated Poisson regression (TP)	Truncated negative binomial (TNB)	Marginal effect
Intercept	0.1358408 (4.31)***	0.1572759*** (4,24)***	0.37149
TTC	-0.002471 (-5.26)***	-0.002476 (-5.24)***	-0.00672
CAS	0.0001816 (1.09)	0.001801 (1.06)	0.00021
INC	0.00991 (2.02)*	0.00985 (2.03)*	0.00263
EDU	0.8706358 (4.20)***	0.8742361 (4.16)***	1.74126
AGE	-0.0121822 (-3.39)***	-0.0123835 (3.36)***	-0.03240
VHM	-0.078641 (-2.26)**	-0.0783379 (-2.19)*	-0.0250
VGS	0.0241392 (1.99)***	0.0231915 (1.96)***	0.06421
VGE	-0.092401 (-0.51)	-0.0908799 (-0.49)	-0.09708
VMS	-0.1981214 (-1.35)	-0.1972076 (-1.32)	-0.5270
VYE	0.1427563 (6.84)***	0.1441681(6.27)***	0.37971
n	124	124	
LR chi2(10)	**122.64**	**79.97**	
Prob >chi2	**0.0000**	**0.0000**	
Pseudo R^2	**0.2563**	**0.1835**	
Likelihood-ratio α		**0.431**	

Note: *** denotes that the coefficient is statistically significant at the 1% level; ** denotes significance at 5%; and * denotes significance at 10%. Numbers in parentheses are t values.
Likelihood-ratio test of alpha=0: chibar2 (01) = 0.03 Prob>=chibar2 = 0.431

APPENDIX B

Questioners

Questionnaire for measuring the economic value of Fasileades World Heritage Royal Enclosure

Date ----------

Interviewer code ----------

Interview started ----------

Interview ended ----------

Interviewee number ----------

Supervisor ----------

My name is Seyidie Shemsu. I am a student of Gondar University, following master's program in natural resource and environmental economics. The purpose of this survey is to know the use value of Fasileades World heritage royal enclosures from domestic visitors. This is purely an academic research and has nothing to do with any other organizational purpose. Therefore, I kindly request you to give me a genuine answer for the questions. Your genuine answer will help to make informed decision in the management and conservation of the site. The information you supply concerning the money and time you or your party spent in going to this site, at the site, and returning home is of high importance for this study.

All information will be confidential and will be used only as totals with no individual names or information released to any person or agency.

Thank you for your cooperation!!

Part one: Travel characteristics, time and cost factors

1. When did you know about Fasileades world heritage royal enclosure site? --------Years
2. How many years have you visited on Fasileades world heritage royal enclosure site?
   ----------Years.
3. How many times you were plan to visit Fasileades royal enclosure site in the last 12 months (number of times) …….
4. How many trips to the Fasileades royal enclosure site did you take during the last 12 months? ---------- trips
5. Is there a difference between the number of trips you planned to take to Fasileades royal enclosure and the actual trips you took during the last 12 months?
   Yes ◯ No ◯
6. If yes what did you think the cause of this difference (circle the appropriate answers)
   a. Income constraint
   b. Leisure time constraint
   c. Distance of the site
   d. Due to unattractive service
   e. Due to preference to other sites
   f. Because you have visited the site many times
   g. Other (please specify)……..….
7. How many trips would you plan to take to Fasileades royal enclosure site in the next 12 months? ---------- trips
8. Do you think that you would take more trips to Fasileades royal enclosure site in the next 12 months than the trips you took before?
   Yes ◯ No ◯
9. If you answered is yes to question 8: How many more trips would you plan to take to Fasileades royal enclosure site in the next 12 months? ----------more trips
10. If you were not on this trip today, what would you most likely be doing? (Circle the appropriate answers)
    a. working at job
    b. housework
    c. watching TV
    d. studying
    e. going to visit another site

f. Other (please specify) ……..

11. How much did you get if you were at your job instead of visiting Fasileades royal enclosure? ……Birr/ hour
12. How many hours did you work per day? .....hours
13. Which period is your preference to visit Fasileades royal enclosure site:
    a. Working days (Monday-Friday)
    b. weekends
    c. public holiday
14. Please estimate the time and distance it takes you to get this royal enclosure from your initial point with your return included:
    a. Total time (days or hours), (travel time to the site + on site stay time + travel time to your destination): ……....+…….....+……. =…….
    b. Total distance (travel distance to the site + travel distance from the site to your destination): ……..+……=…….Kms
       Alternatively specify the name of your initial point and the way of travel to the royal enclosure? …….....
15. What percent of your total enjoyment can be attributed to each of the following?
    a. Journey to and from the site ---------%(if you got some enjoyment in your journey)
    b. Visiting the site ----------% (Please make sure that your responses add to 100%)
16. How did you come to Fasileades royal enclosure?
    a. Own vehicle private car
    b. Public transport
    c. NTO or other travel agents' vehicle
    d. Others (please specify)
17. How much (birr) did you spend on your trip to the royal enclosure?
    a. Transportation cost…….
    b. Fuel…….
    c. Food and drink……
    d. Accommodations……
    e. Guide service and entrance fee ……
    f. Others (please specify .....)
    g. Total…….....birr

Part two: Respondents opinion and group characteristics

1. Are you travelling with a group? Yes ◯ No ◯
2. If yes write the total members of the group ……
3. What is your social or kinship relationship with the other members of the group?
   a. Friendship
   b. Relative's
   c. colleagues
   d. Family
   e. Other (please specify)……
4. Have you combined visiting friends or relatives to this trip?

   Yes ◯ No ◯

   If your answer is yes, go to the next question otherwise skip to question (7)
5. How much time did you spent by visiting your friends on the same trip? ……hours
6. Have you combined business with this trip?
   a. Yes ◯ No ◯ if your answer is yes go to the next question otherwise skip to question 9
7. How much money did you get from that business? ……..birr
8. How many are the numbers of other substitute (similar) sites you have considered to visit on this trip? ……
9. What is the percent of your total enjoyment to each cultural heritage sites you have visited on this trip?
   a. Fasileades royal enclosure .....%
   b. Other similar heritage sites.....% (Please make sure that your responses add to 100%)
10. Do you know any other cultural or historic heritage sites that you would like to visit instead of Fasileades world heritage sites?

    Yes ◯ No ◯

    If yes, what is the name of your most preferred alternative site? …….....

    if you do not answer this question please skip to question (14)
11. What is the total cost of visiting that alternative site including round trip transportation, equipment, supplies, food, accommodations, etc.? _____ Birr/visit
12. How much did you ask your institution to pay you if you were asked to be at your job instead of visiting this alternative site?----------Birr

1. What is the one-way distance from your home/residence to your most preferred alternative site if you didn't visit Fasileades riyal enclosure?---------- One way Kms

2. How many days per year are you free from other obligations so that you could undertake visit to heritage sites? _____ days per year

3. What is your total time (hours) away from home on a typical trip to Fasileades royal enclosure? ----------hours
4. When going on visitation, how important is the visit to cultural/ historic heritage sites?
   a. Very important
   b. Somewhat important
   c. Not that important
   d. Not important at all
5. What is your most important motive behind visiting this and other similar cultural/historic heritage sites?
   a. Educational and historic value of the site
   b. Recreational benefit of the site
   c. Aesthetic and artistic value of the site
   d. Religious value of the site
   e. Other (please specify it)
6. How would you describe your satisfaction (experience) of Fasileades Royal enclosure? (Circle any one of the following)
   a. Better than I expected
   b. As I expected
   c. Worse than I expected
7. Please indicate the source of your disappointment on your visit to the Fasileades royal enclosure sites(if any):
   a. too expensive
   b. not good enough maintenance of the royal buildings
   c. inadequate information
   d. unfriendly welcomes
   e. too crowded
   f. if you have any other comment please specify it here

_____

_____

_____

_____

Part three: Demographic Characteristics of the Respondent

Name _____ country _____town/City _____

1. Gender a. Male b. Female

2. Marital status: a. Single b. Married c. Divorced /Separated d. Other (e.g. Cohabitation-live together without formal marriage) please specify_____

3. Age _____ years

4. Your level of education (grades scored)? .....

5. Occupation:

b. Private or public sector employee

c. Own business

d. Student

e. Unemployed

f. Other (please specify_____)

6. Family size: what is the number of people in your family? .....

7. Gross income: what is your own gross income? From:

a. Employment _____ Birr per _____ (day, week, month)

b. Business _____Birr per_____ (day, week, month, year)

c. Other sources _____Birr per _____ (day, week, month, year) (e g. House rent, Bank interest, including pocket money from parents, relatives, friends etc) please specify_____

8. What is the minimum wage/hour? ----------Birr/hour

9. How many people in your family (including yourself) earn their own income? ----------, and what is their gross income? _____ (either from employment or business or others activities)